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Gylander et al.

(54) APPARATUS FOR ATTACHING EQUIPMENT

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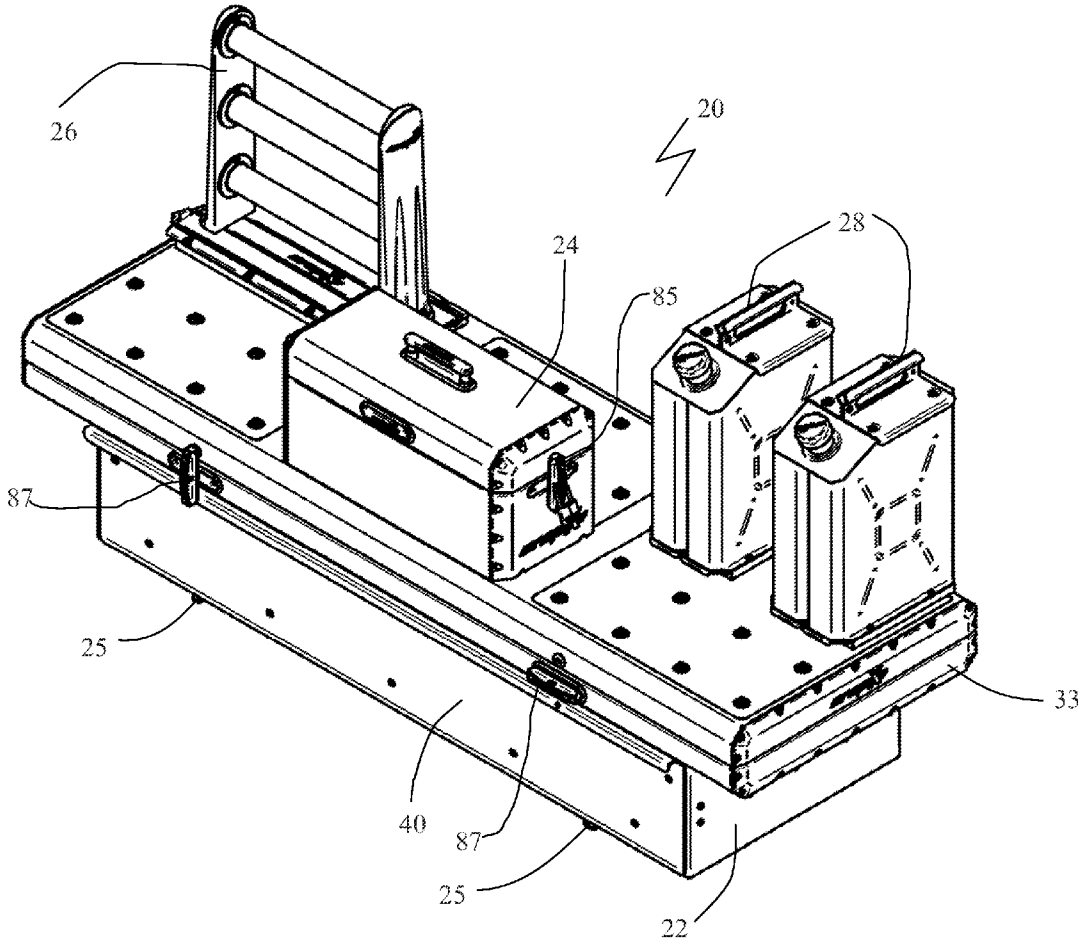
USPC **29/700**; 206/372

(57) **ABSTRACT**

An apparatus for attaching equipment includes a base and one of a toolbox or tool accessory. The base has a primary engagement surface with a plurality of outwardly projecting male members each comprising a shaft with an enlarged head at a remote end. The toolbox or tool accessory has a secondary engagement surface with a plurality of inwardly recessed female receivers configured to receive the male members in mating relationship. A locking assembly is positioned within the toolbox or tool accessory. The locking assembly includes a movable catch that is movable between a locking position and a release position. In the locking position, the catch engages the enlarged head of each of the male members to prevent the male members from being withdrawn from the female receivers. In the release position, the catch is spaced from the enlarged heads of each of the male members.



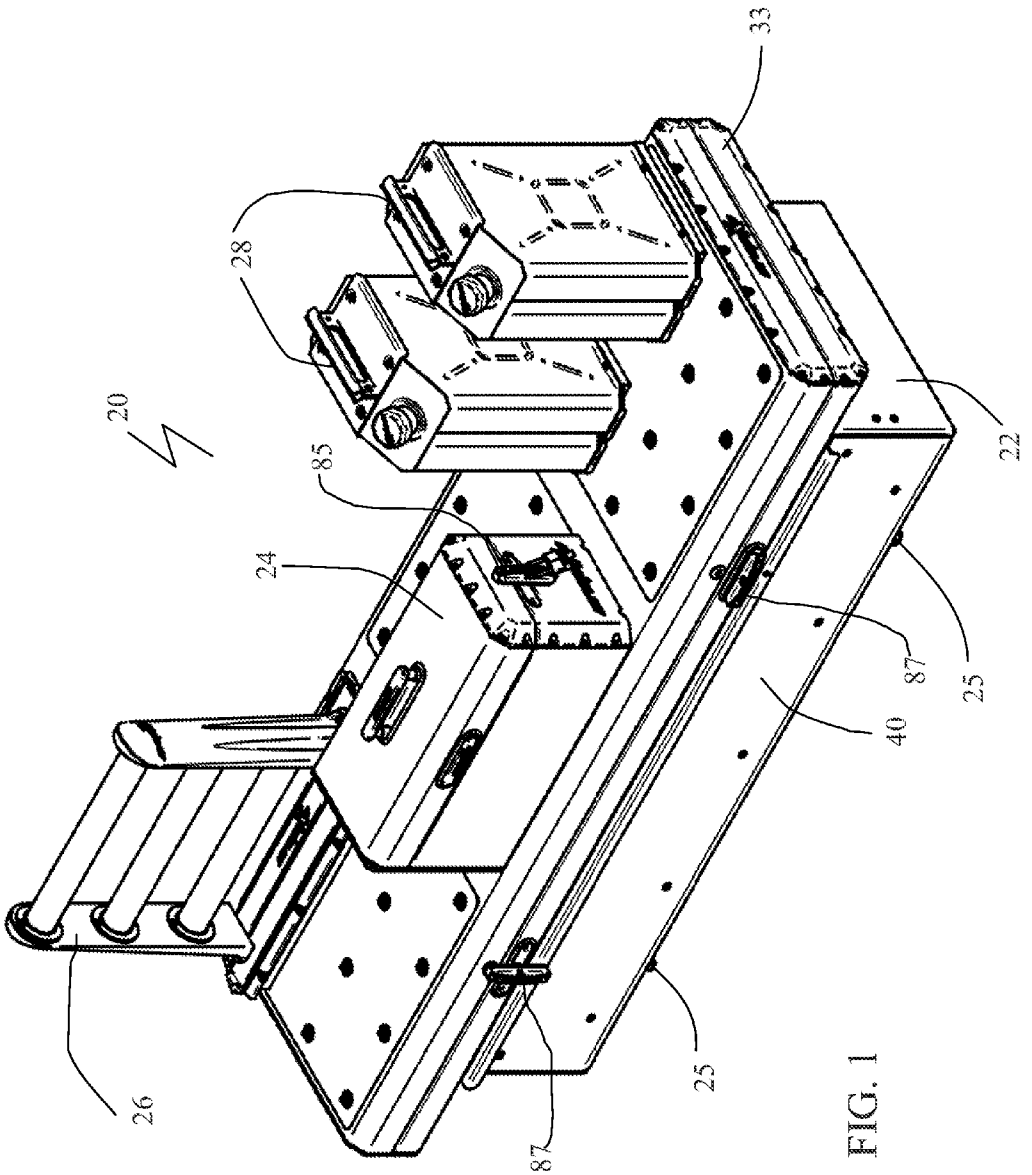


FIG. 1

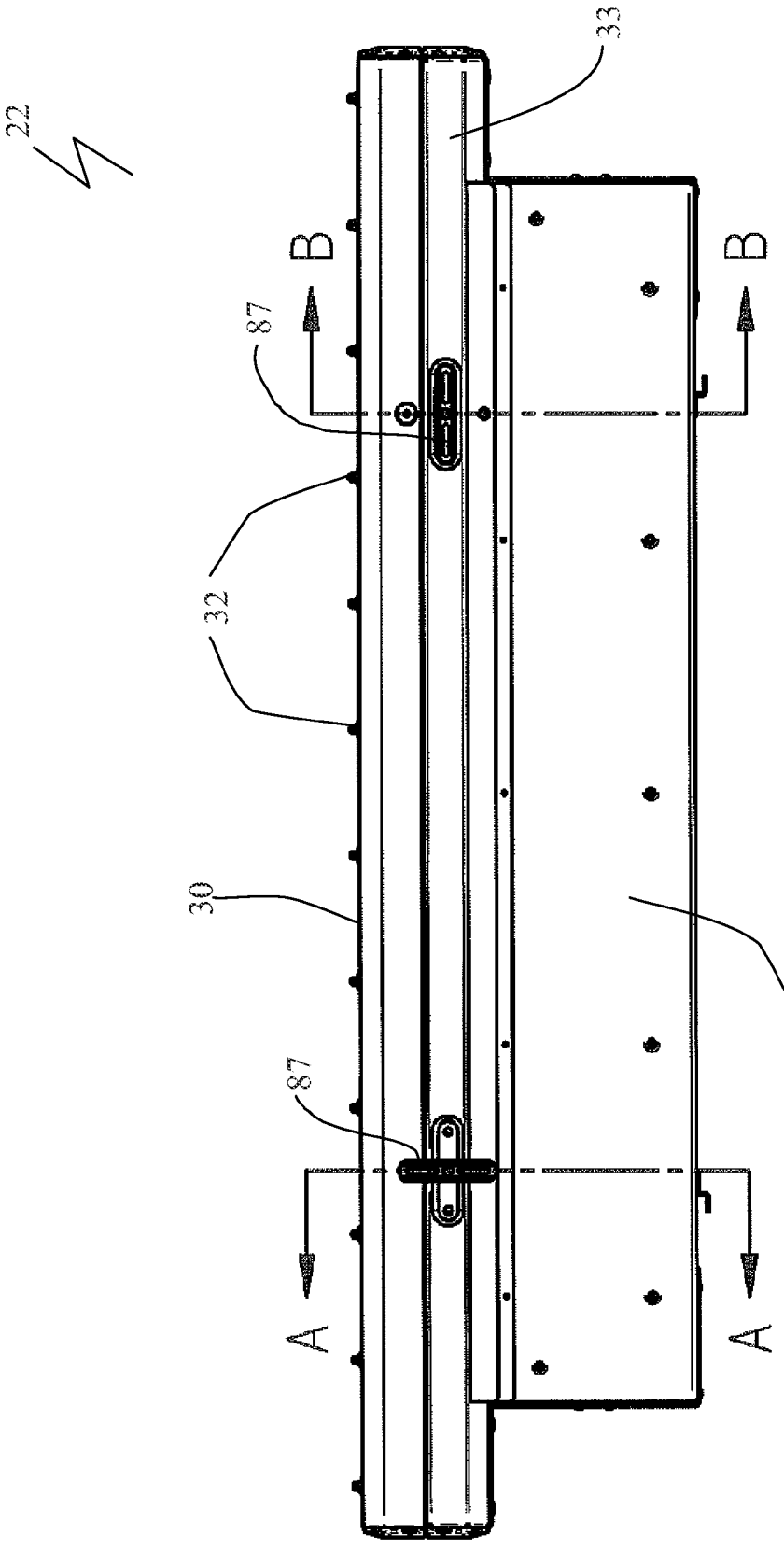


FIG. 1A

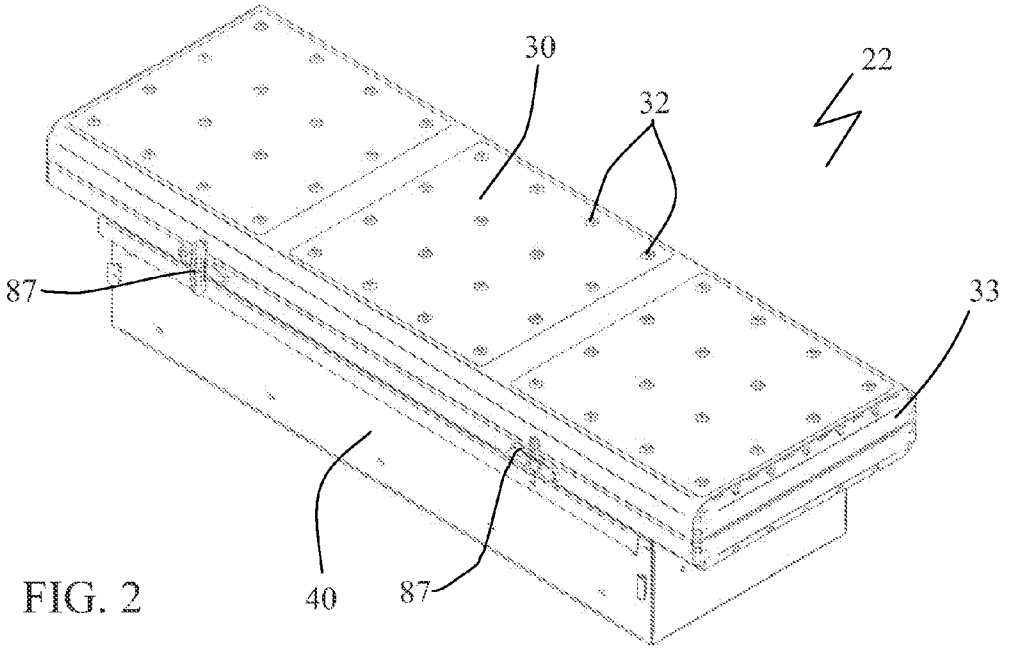


FIG. 2

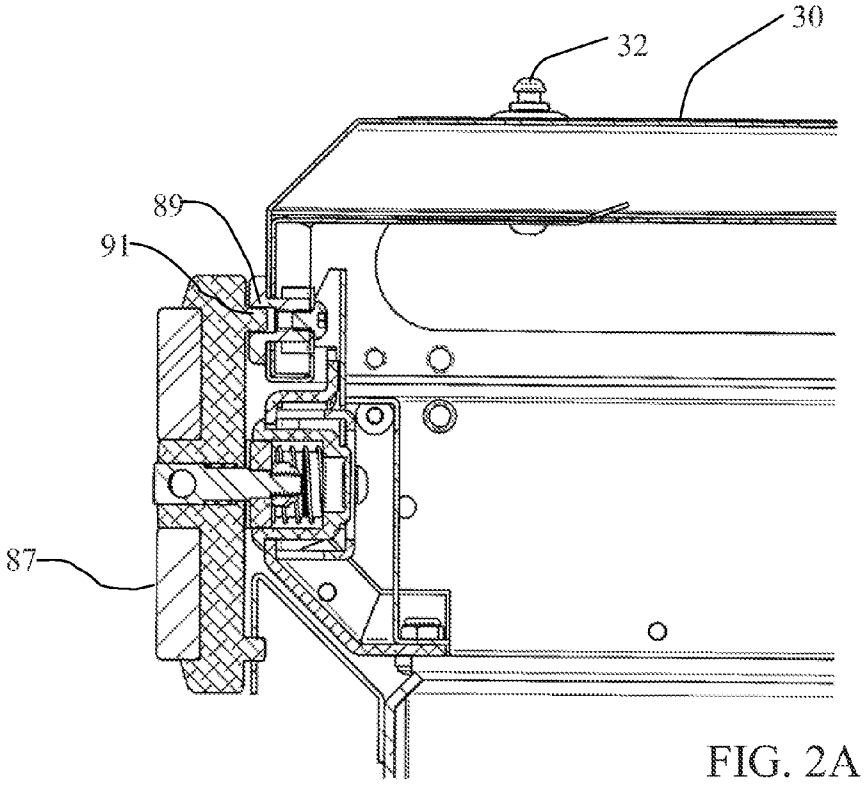
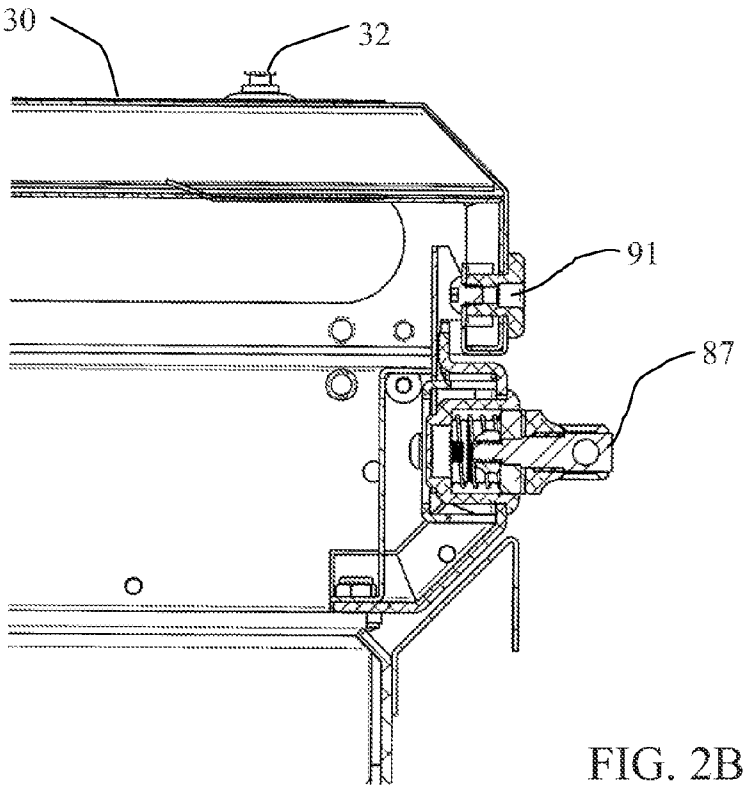


FIG. 2A



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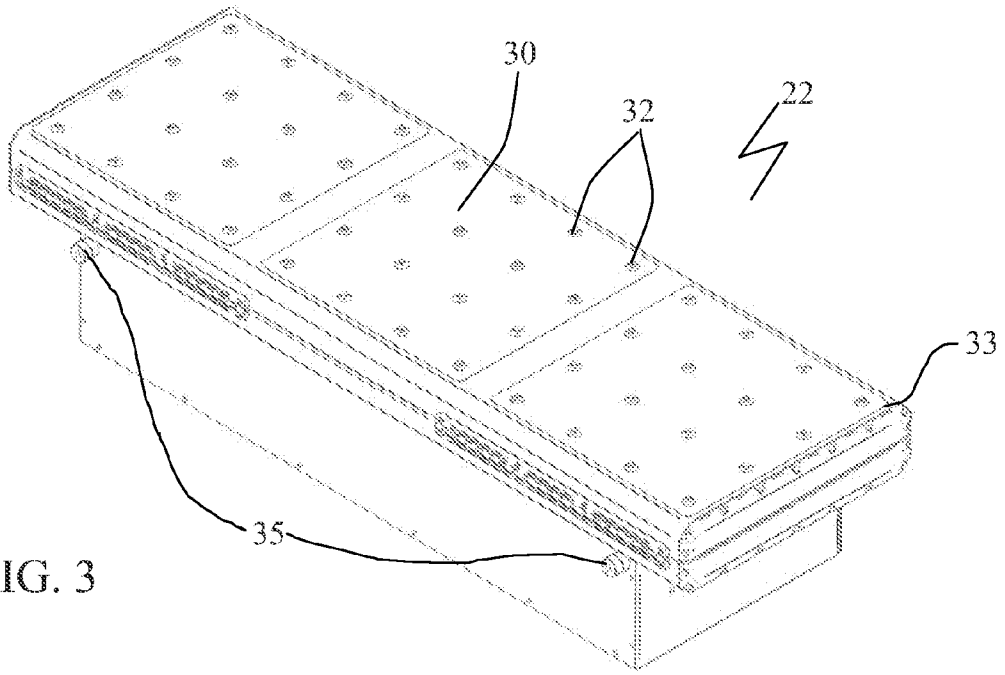
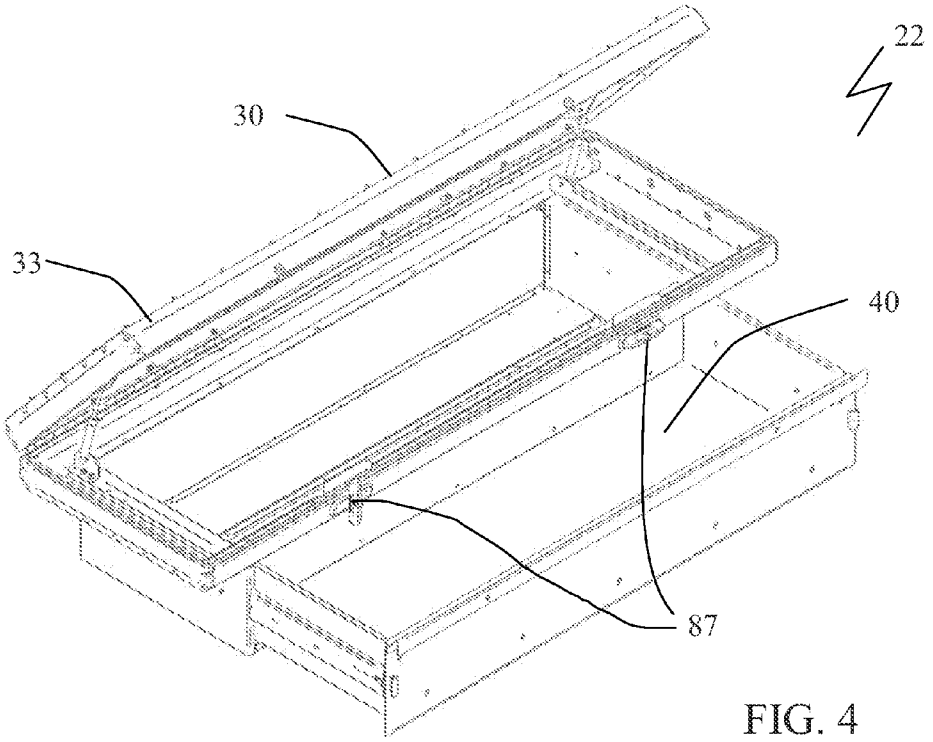


FIG. 3



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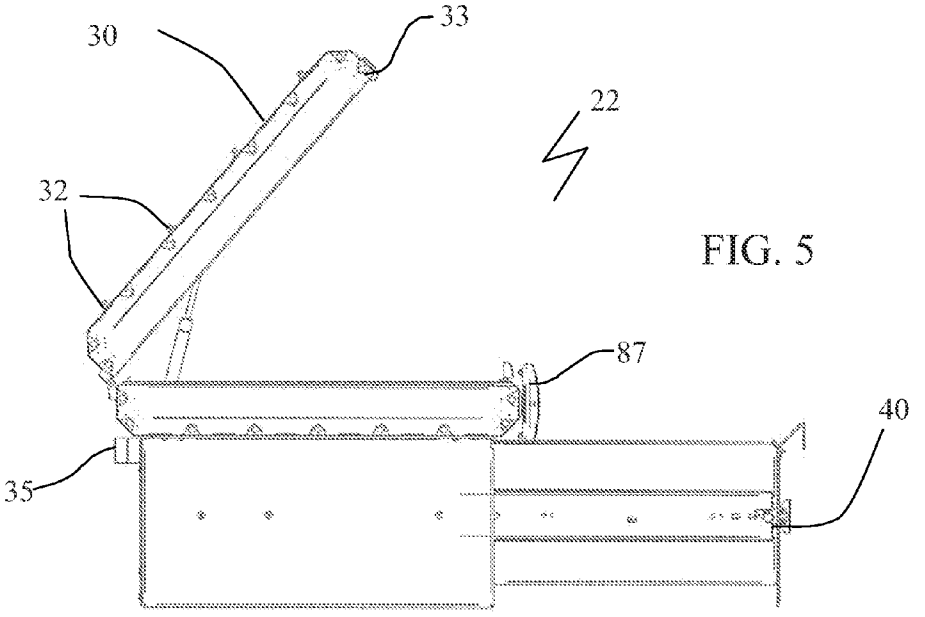
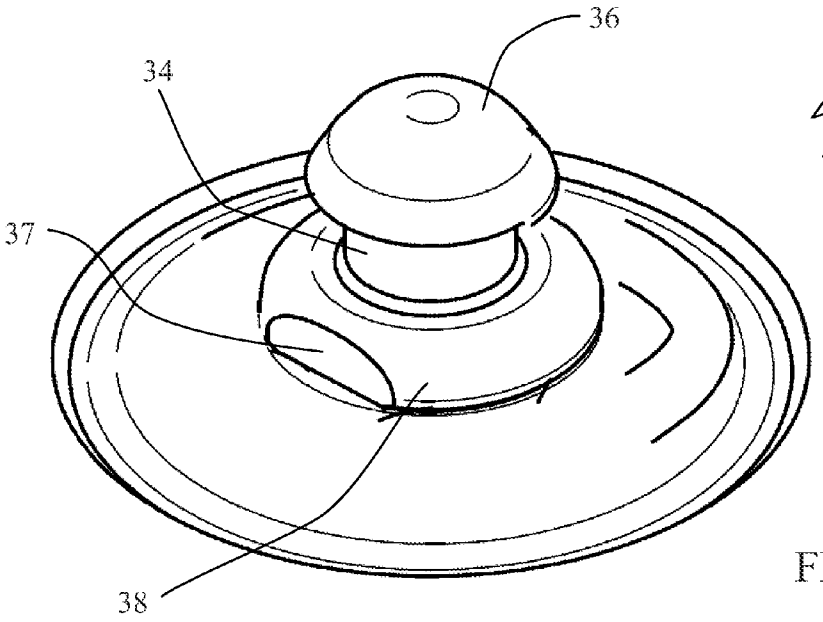


FIG. 5



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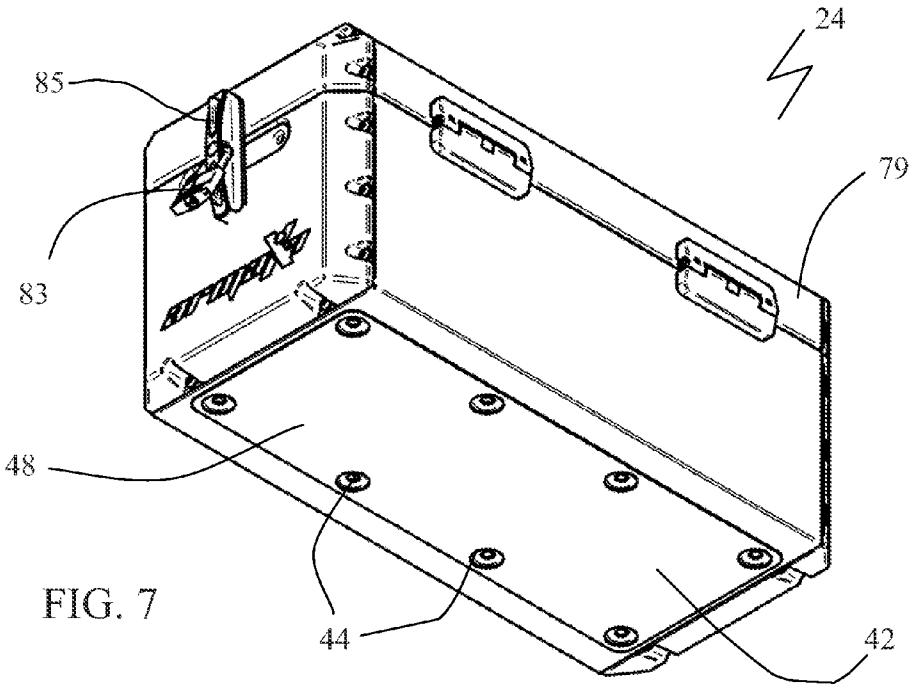

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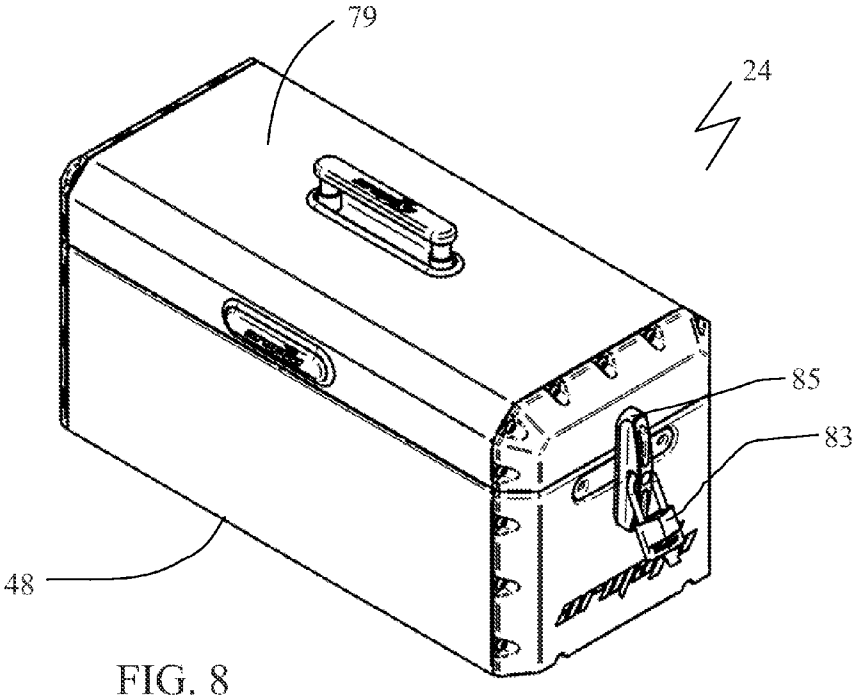

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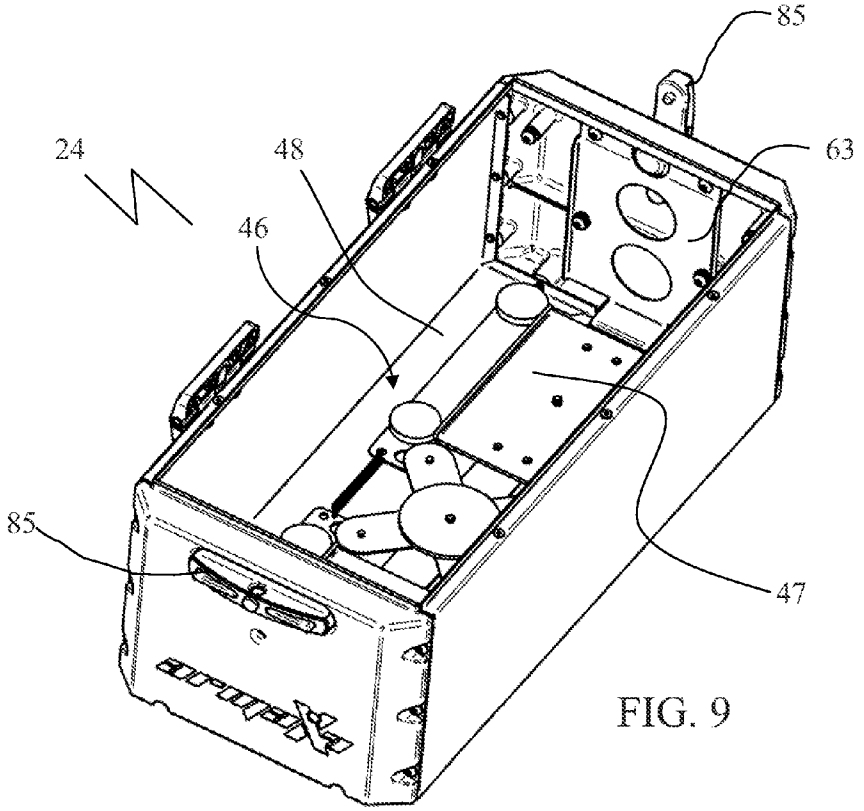

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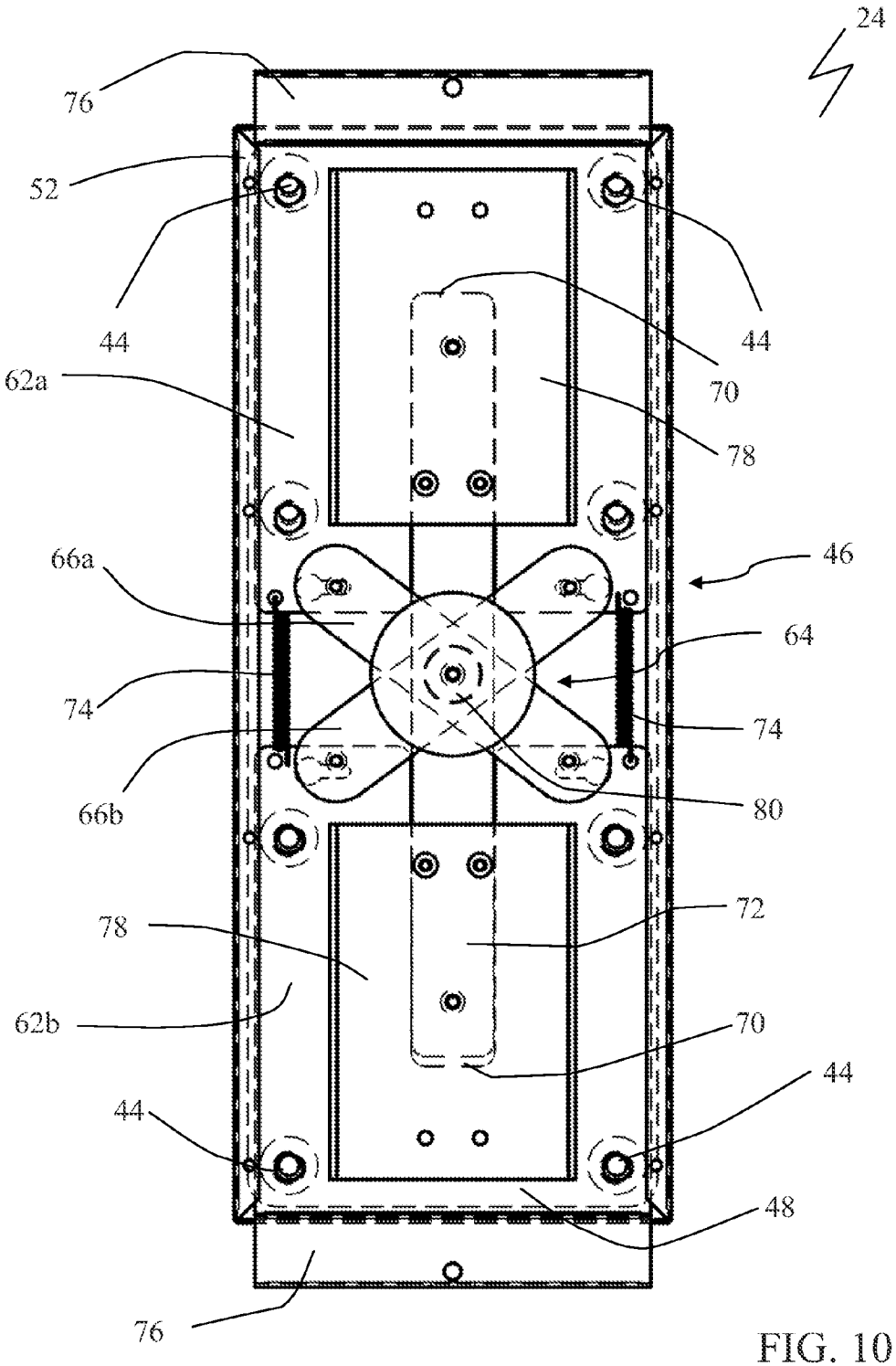
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FIG. 10

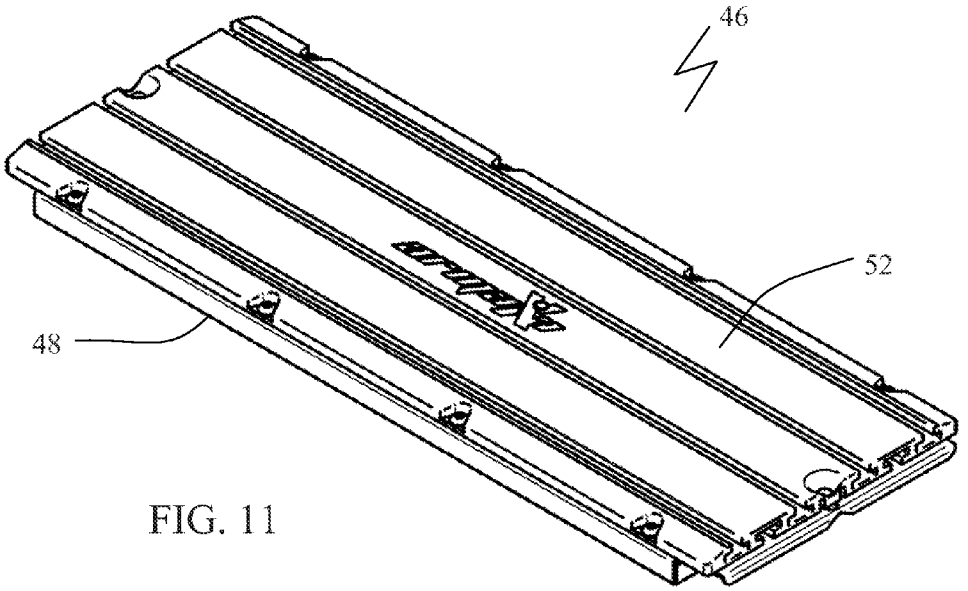

FIG. 11

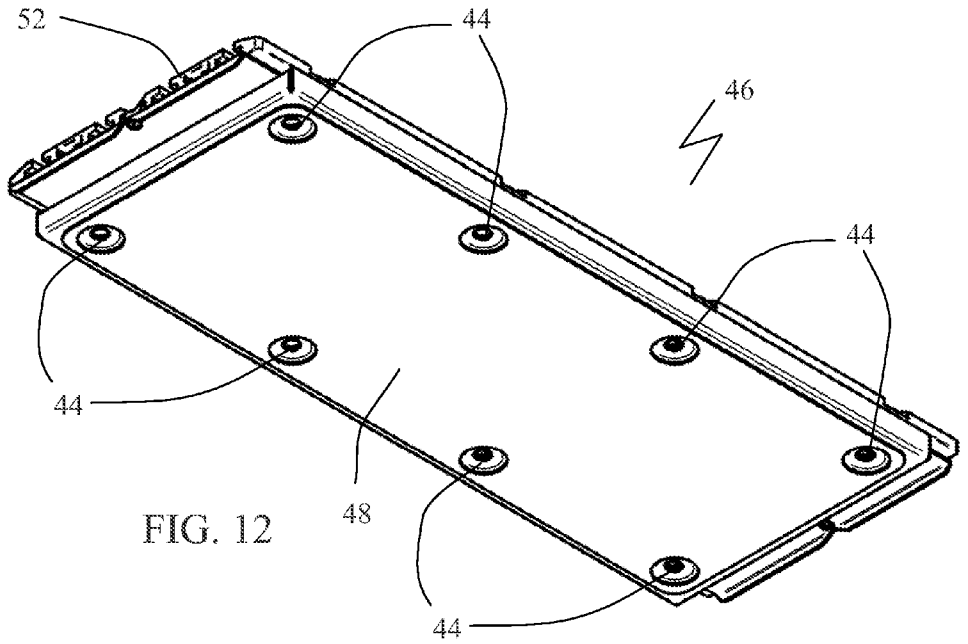

FIG. 12

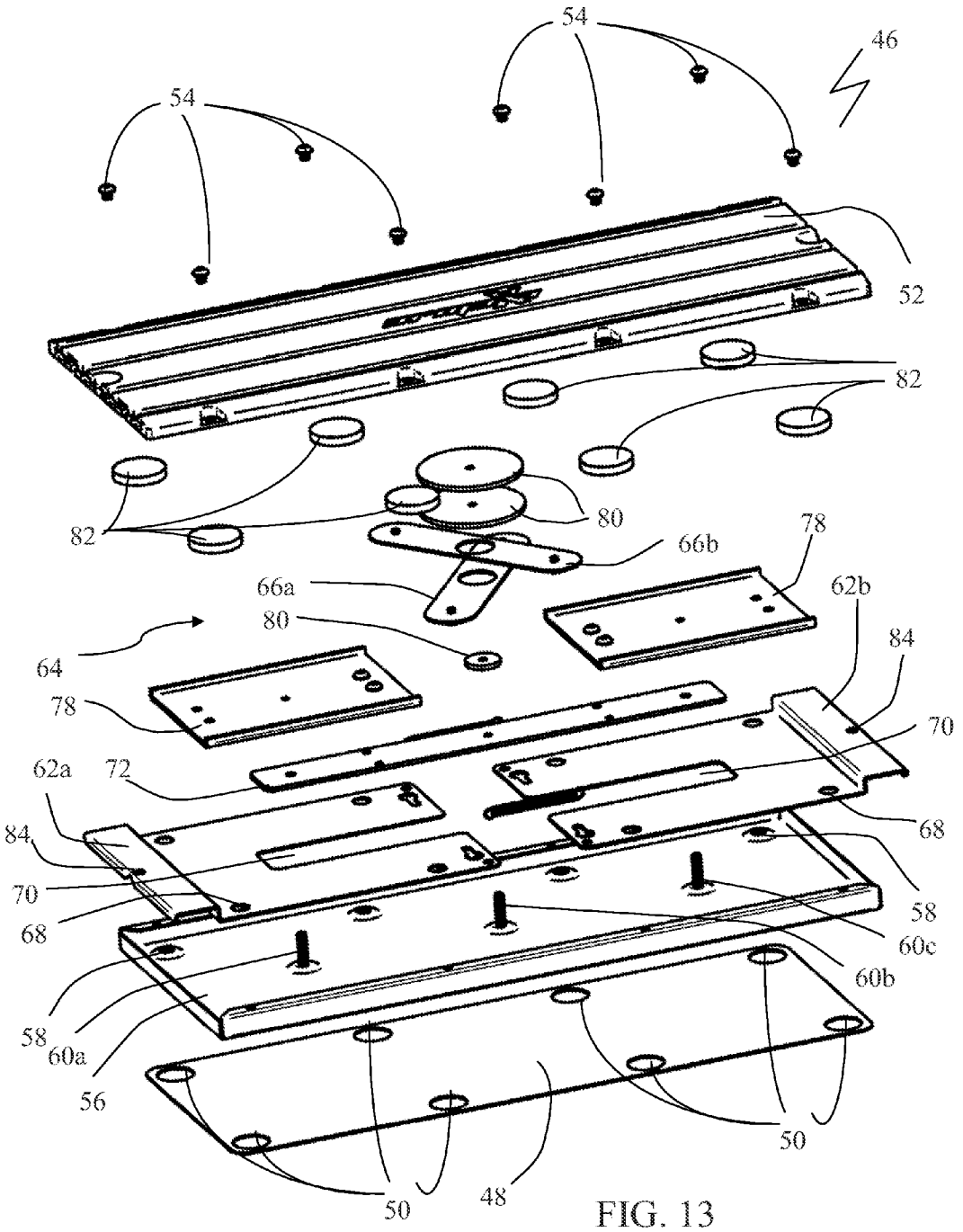
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FIG. 13

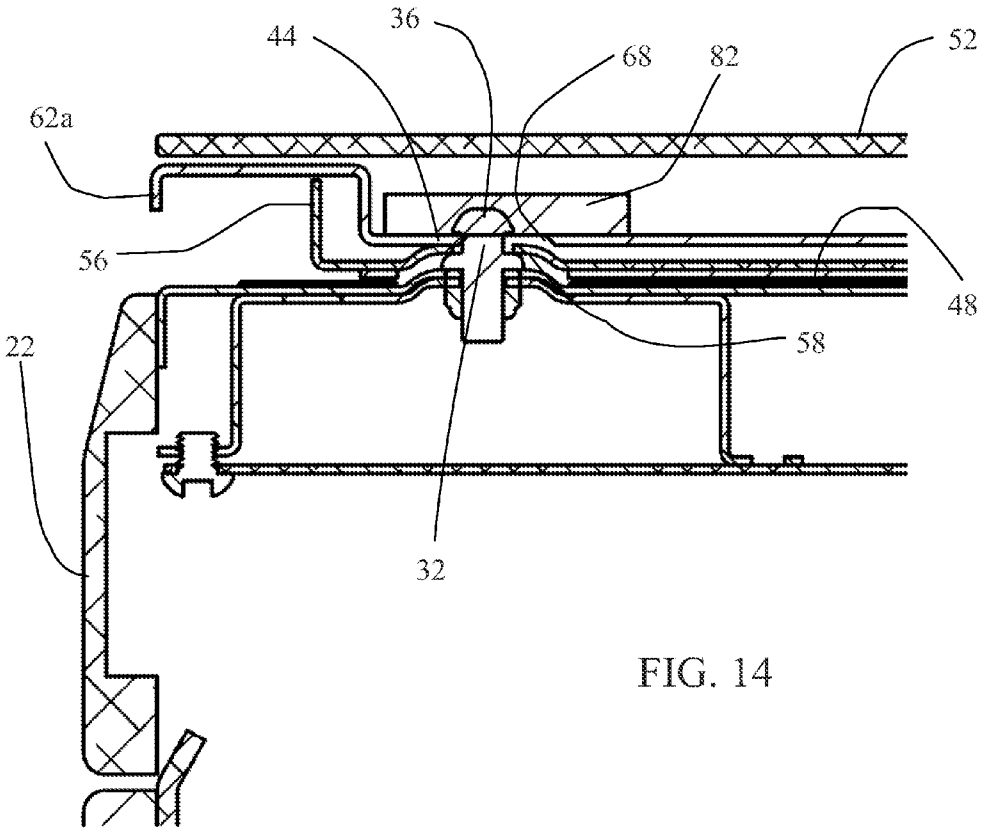
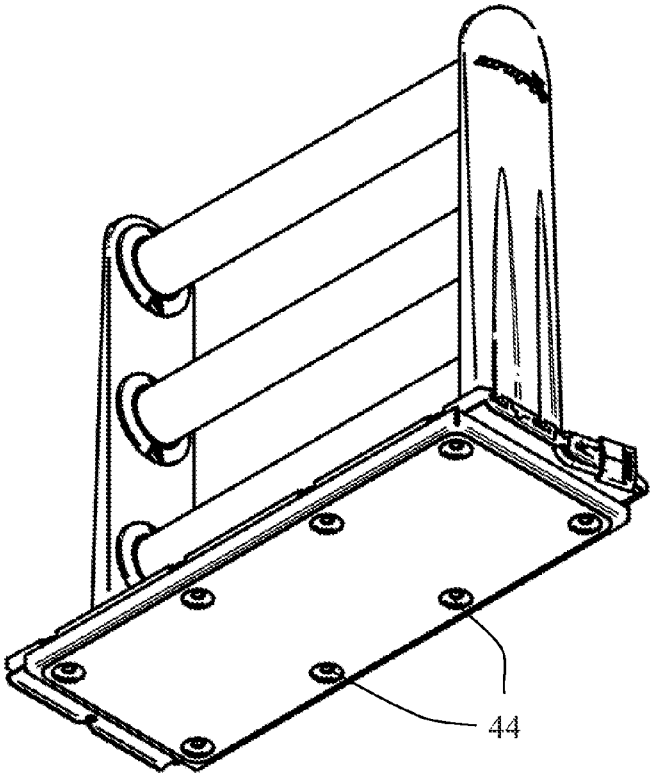


FIG. 14



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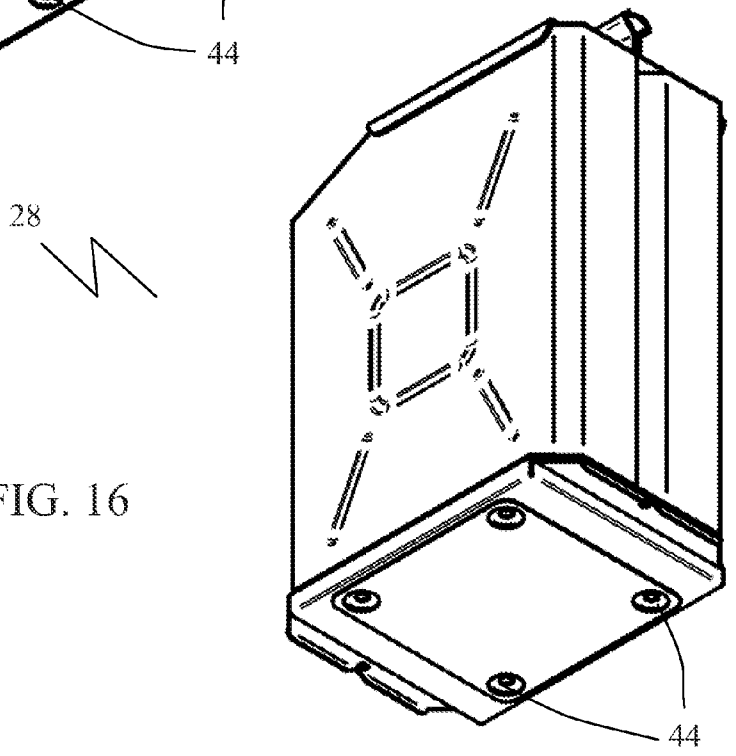
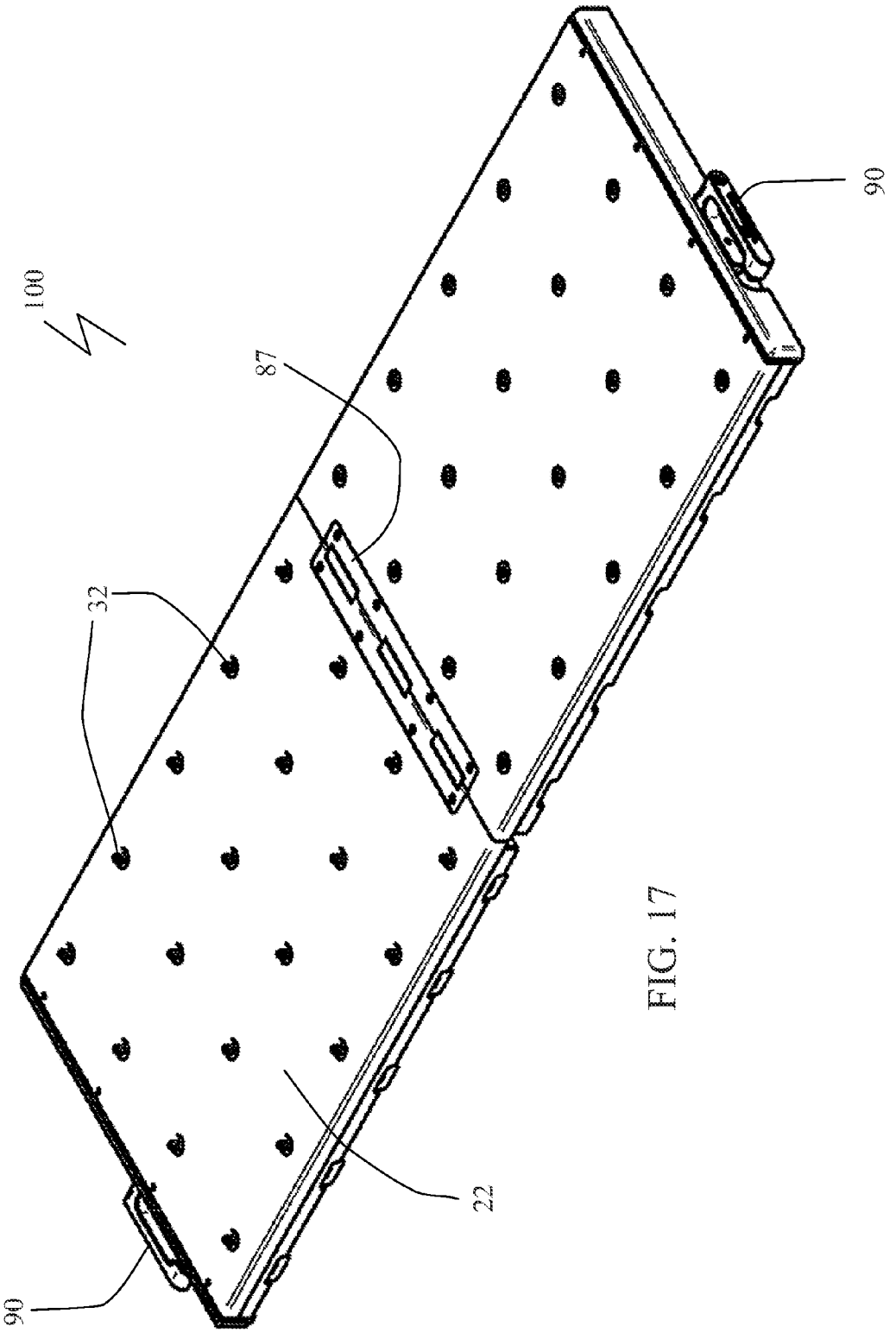


FIG. 16



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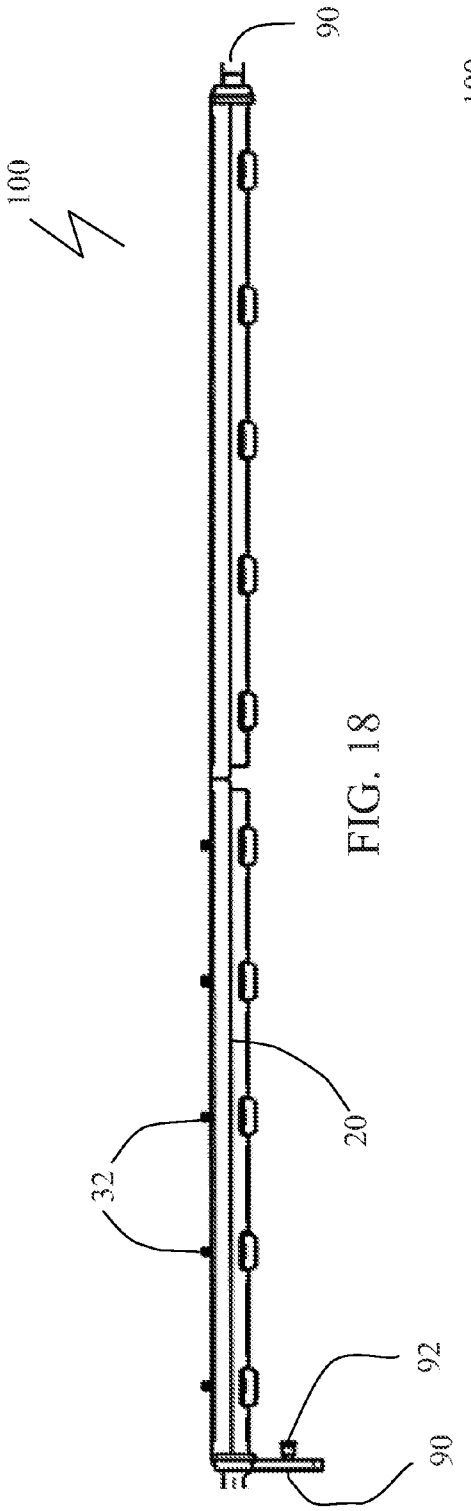

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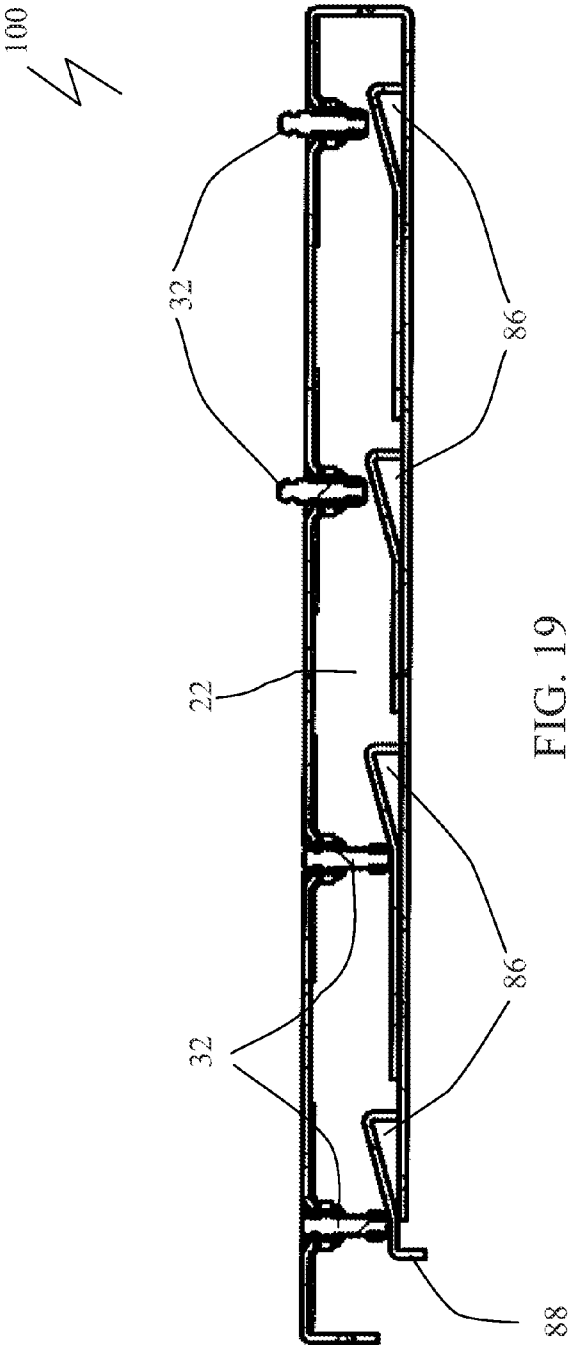


FIG. 19

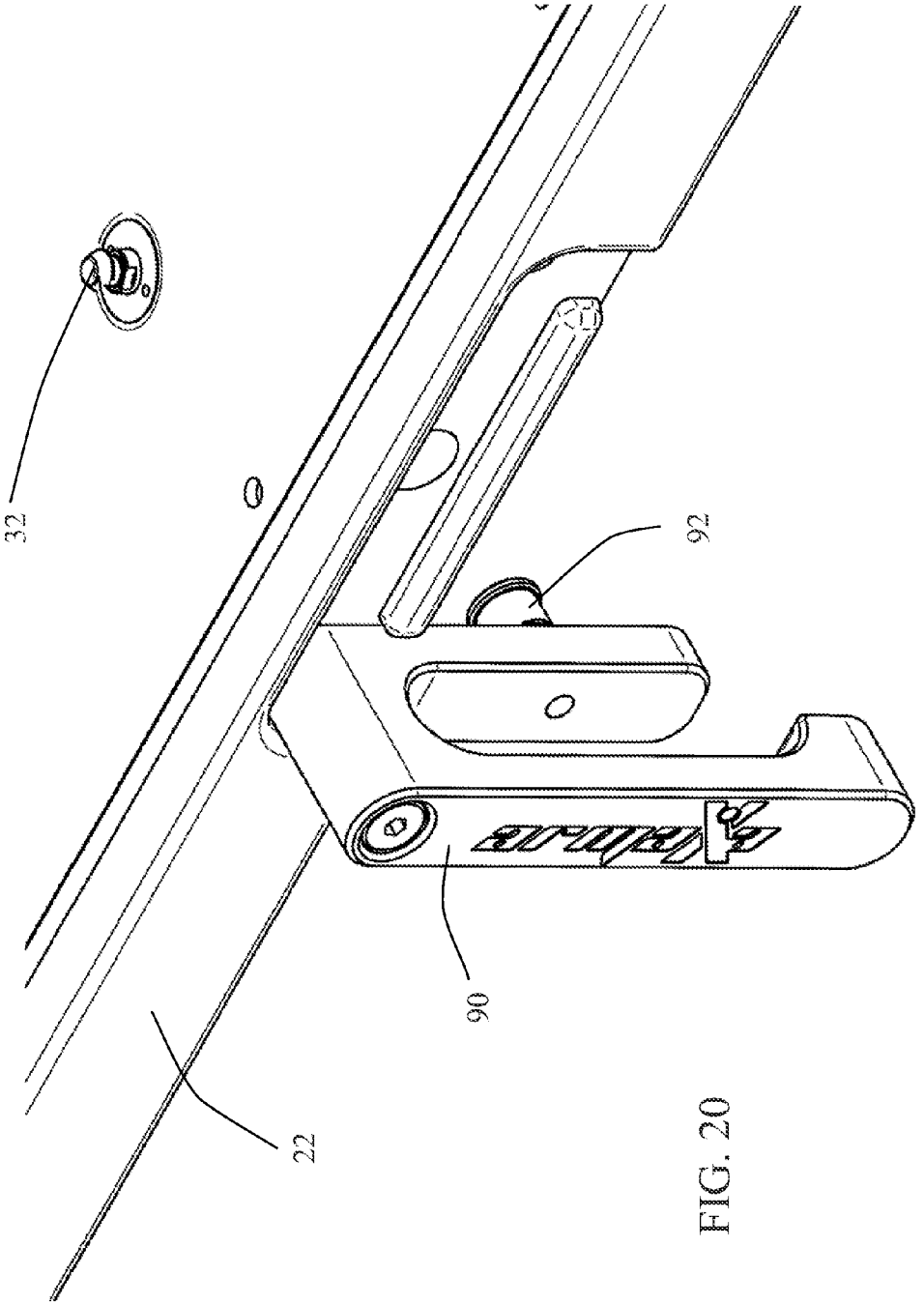
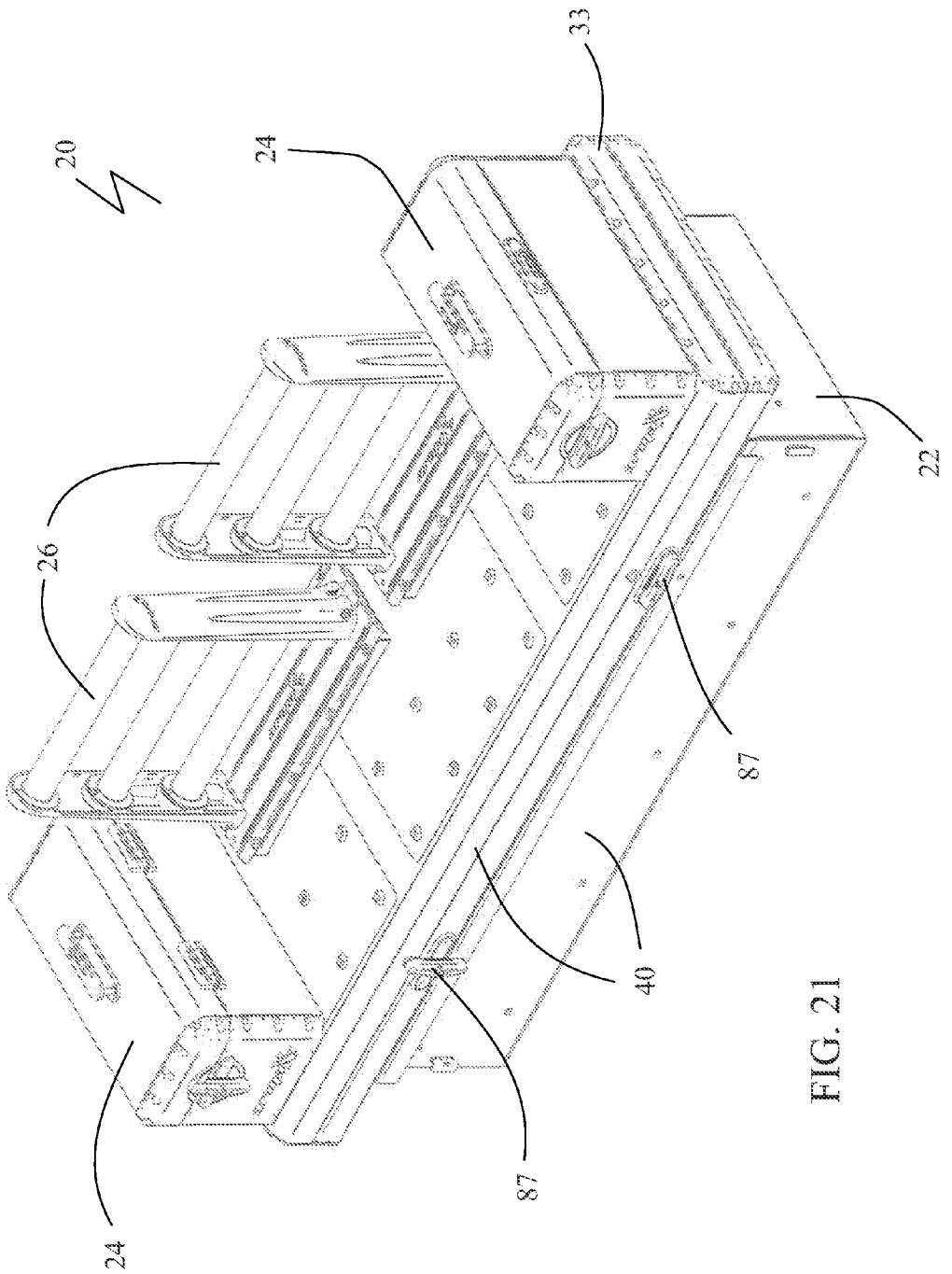


FIG. 20



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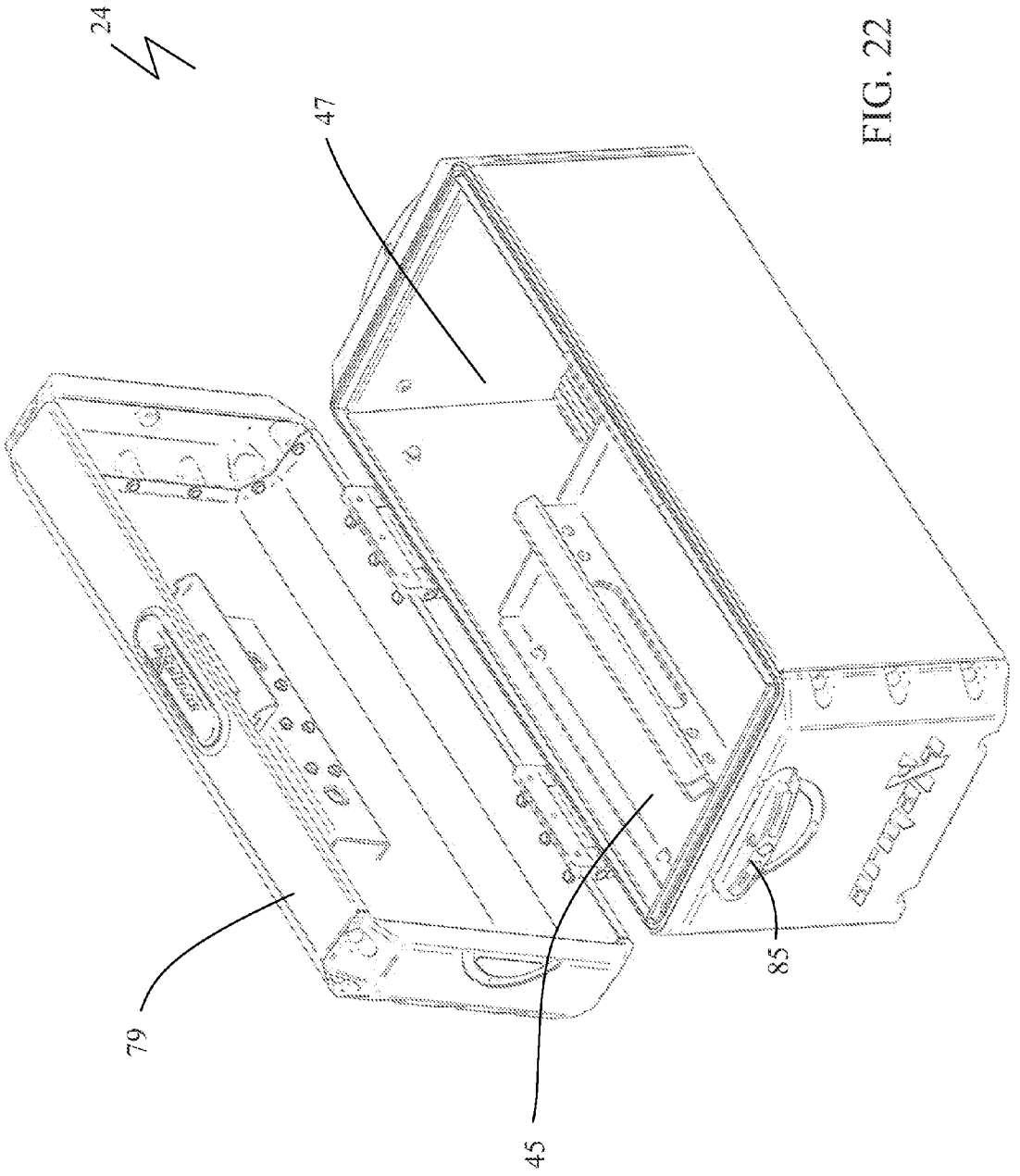


FIG. 22

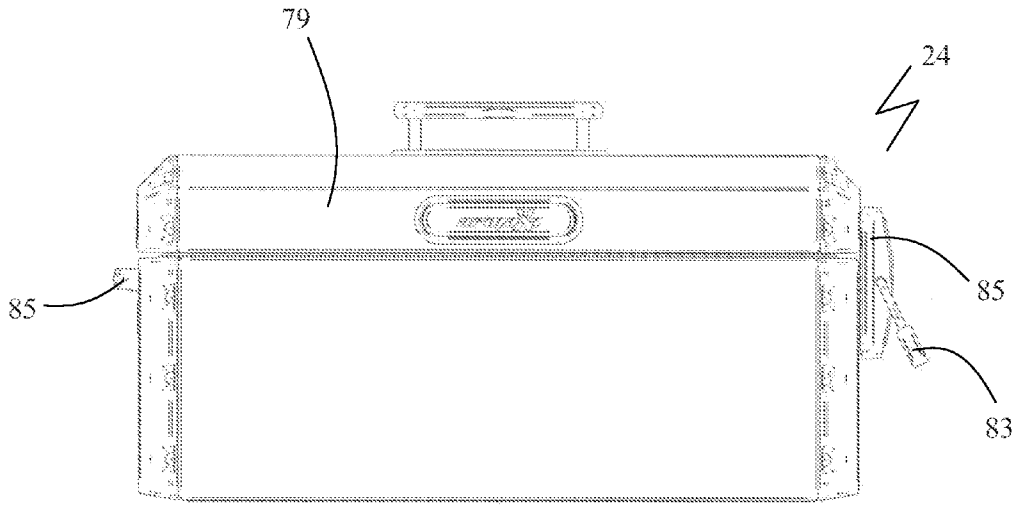


FIG. 23

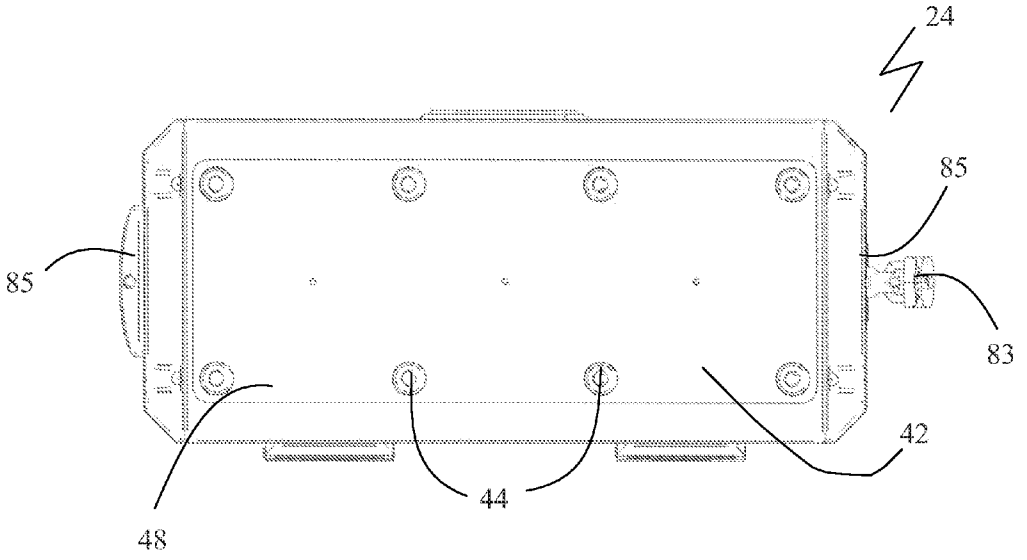


FIG. 24

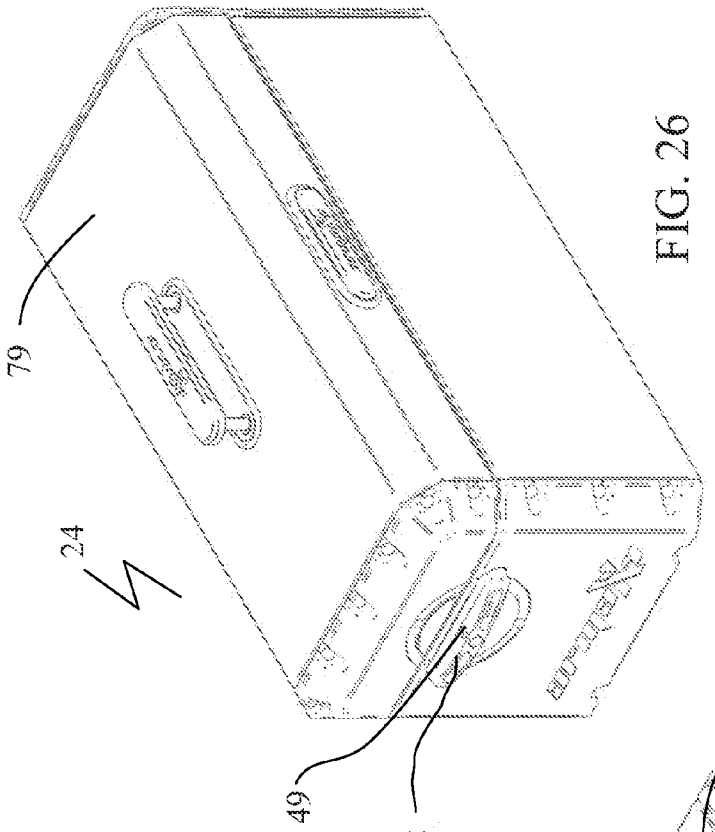


FIG. 26

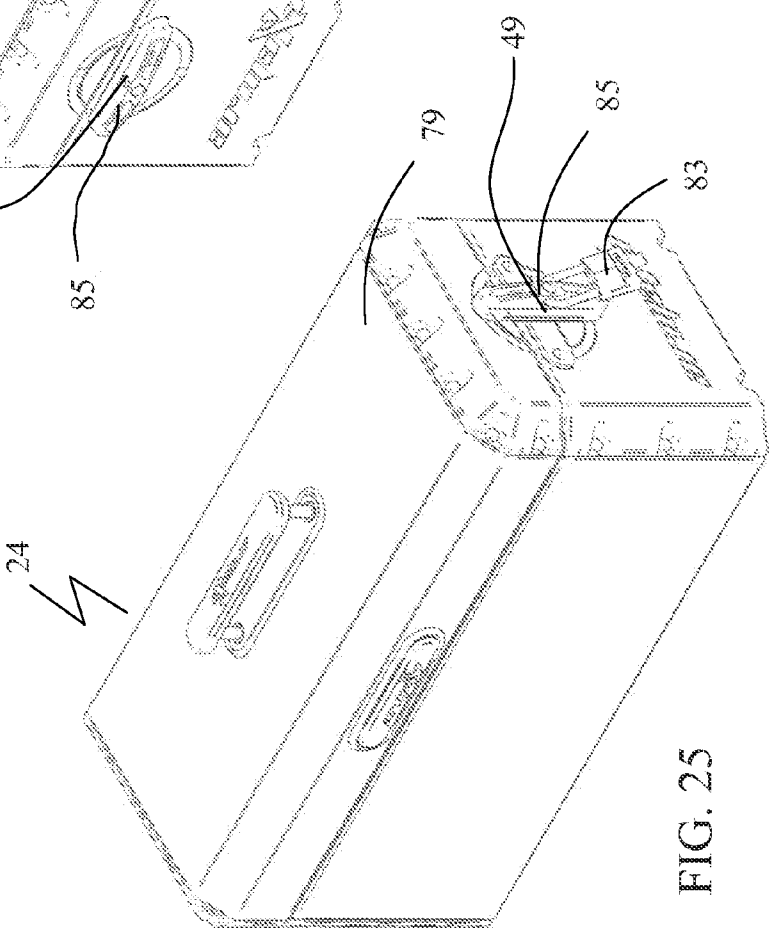


FIG. 25

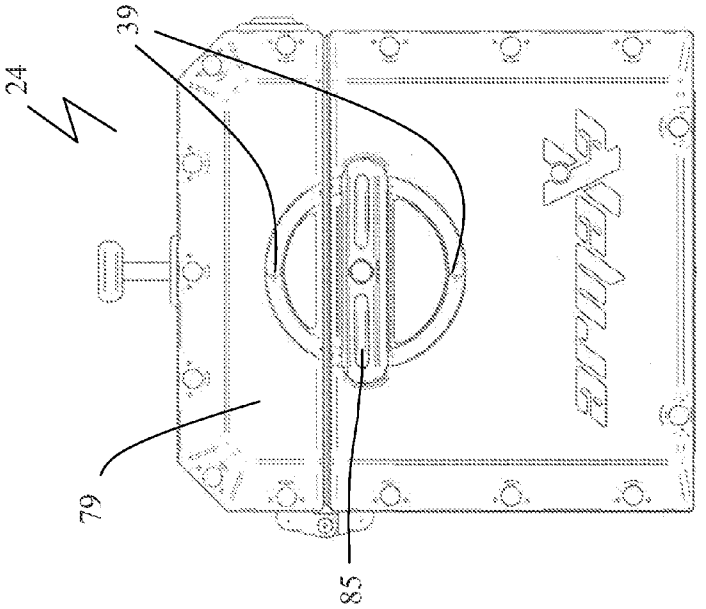


FIG. 26A

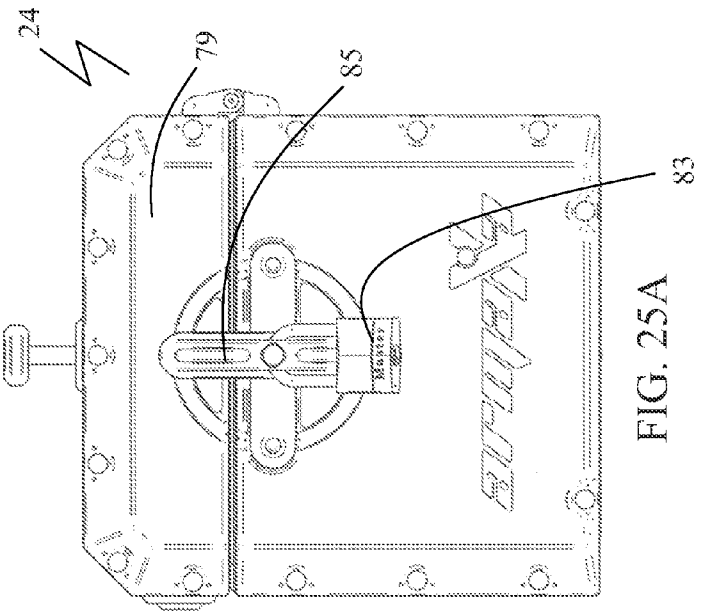


FIG. 25A

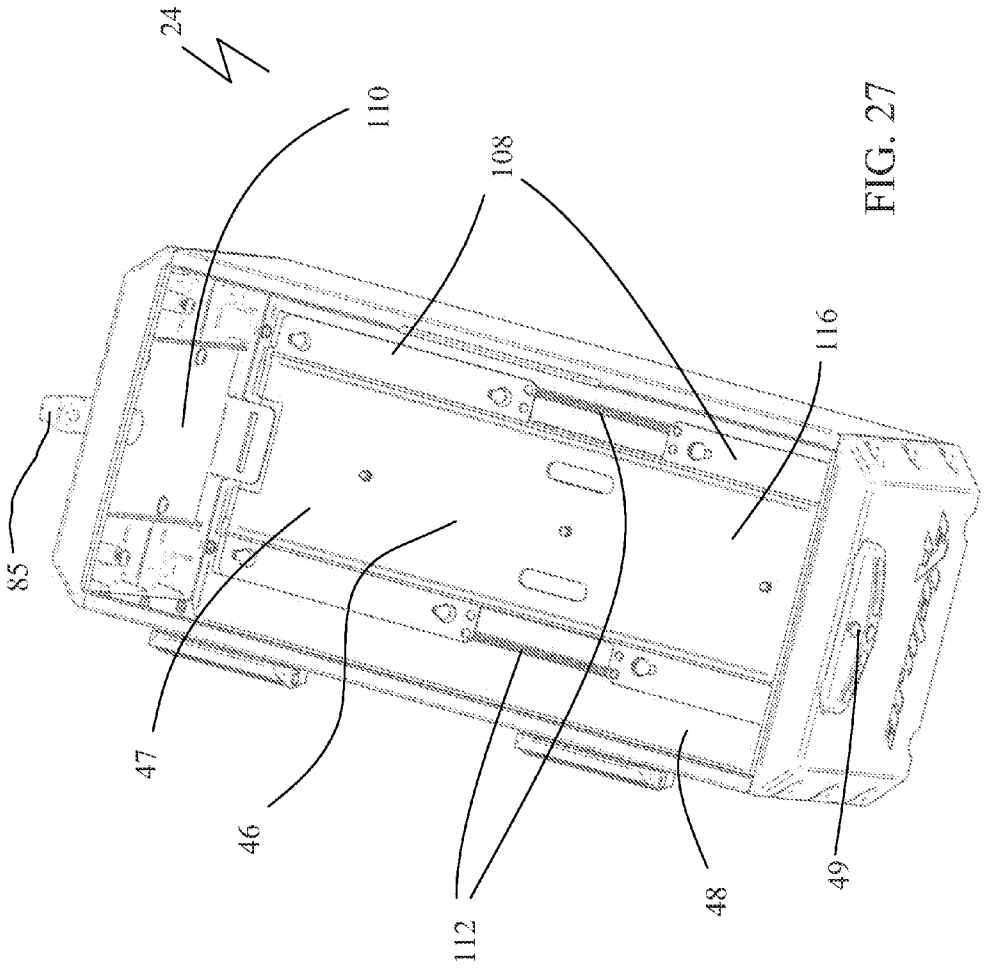


FIG. 27

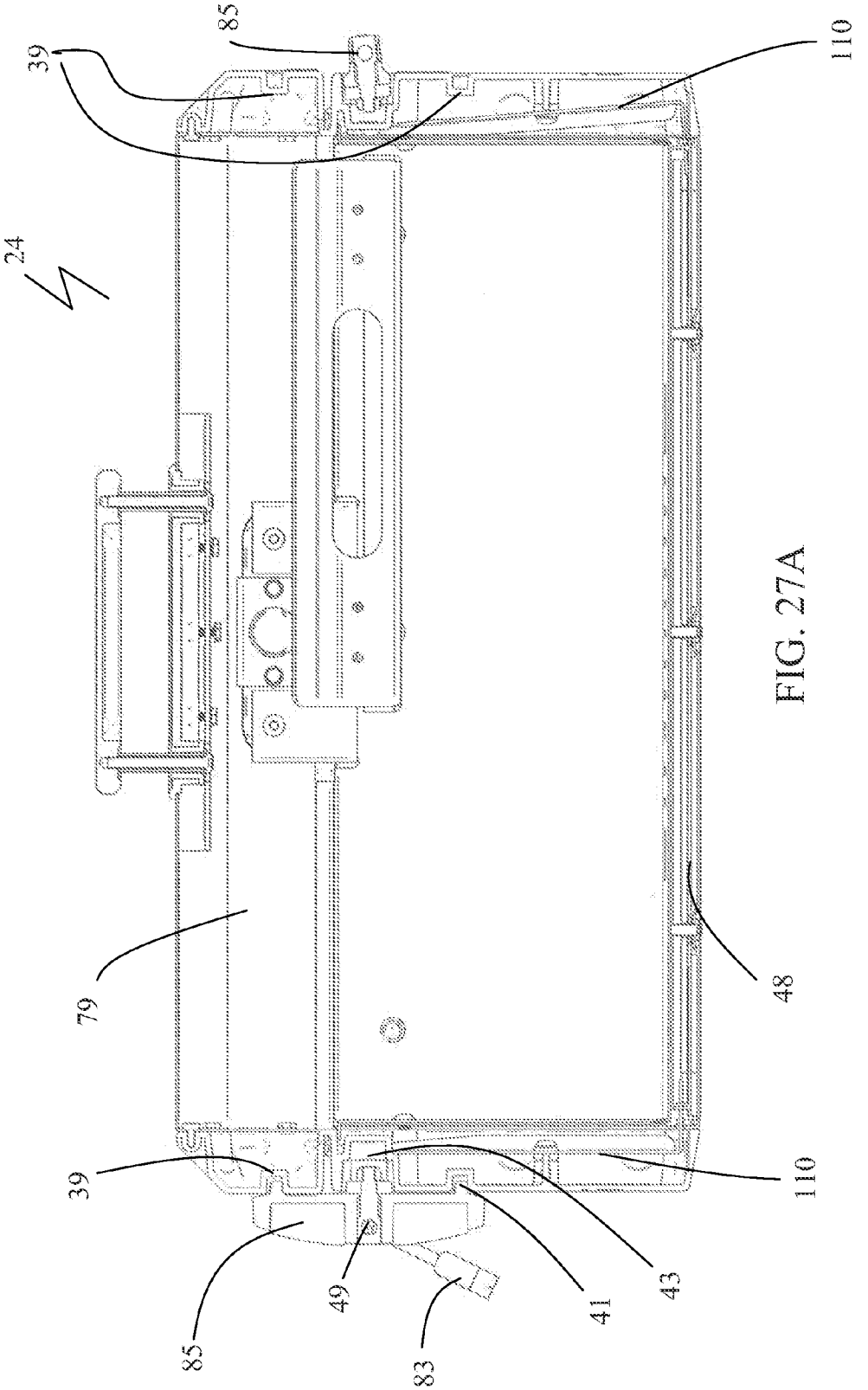


FIG. 27A

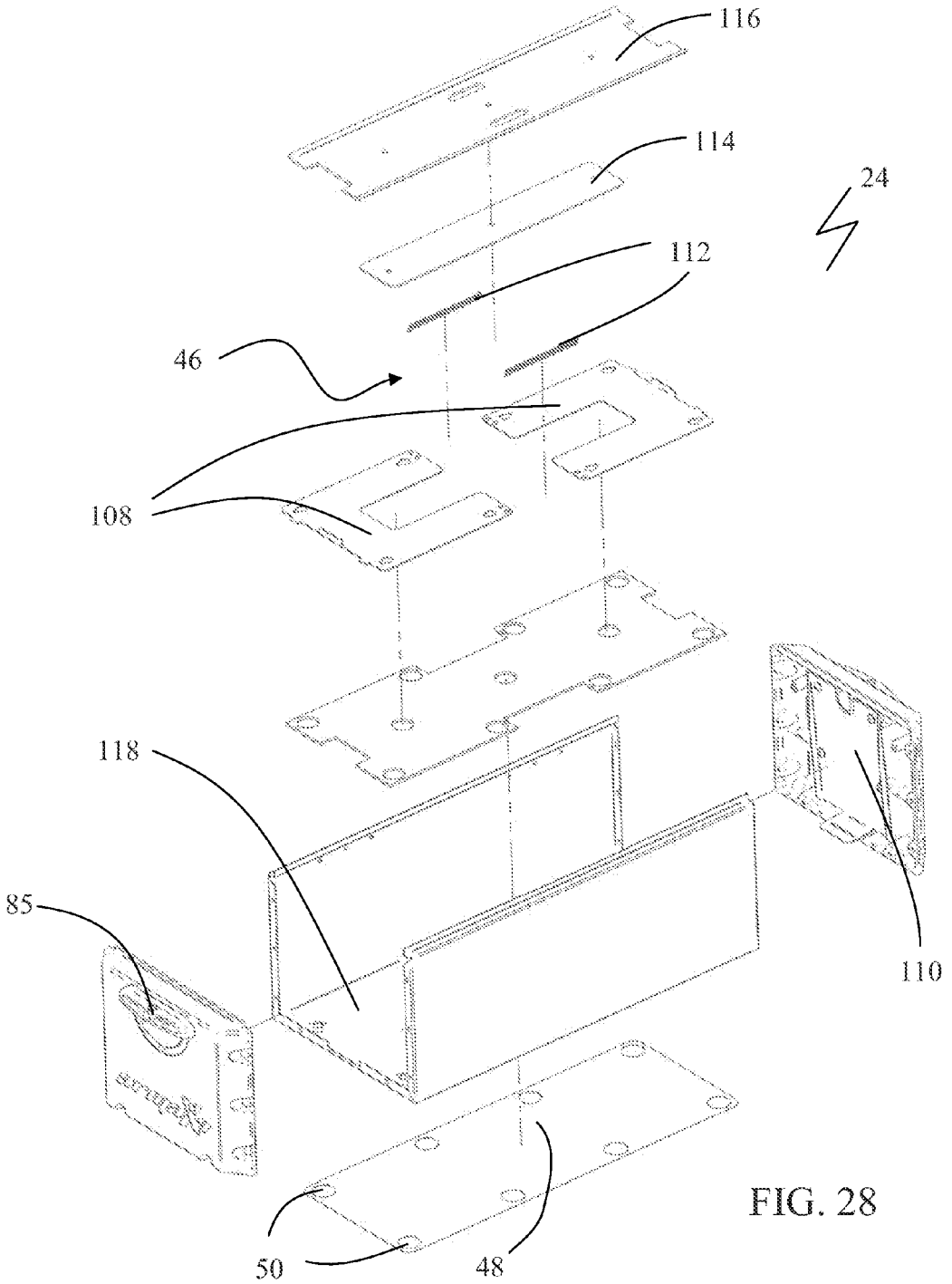


FIG. 28

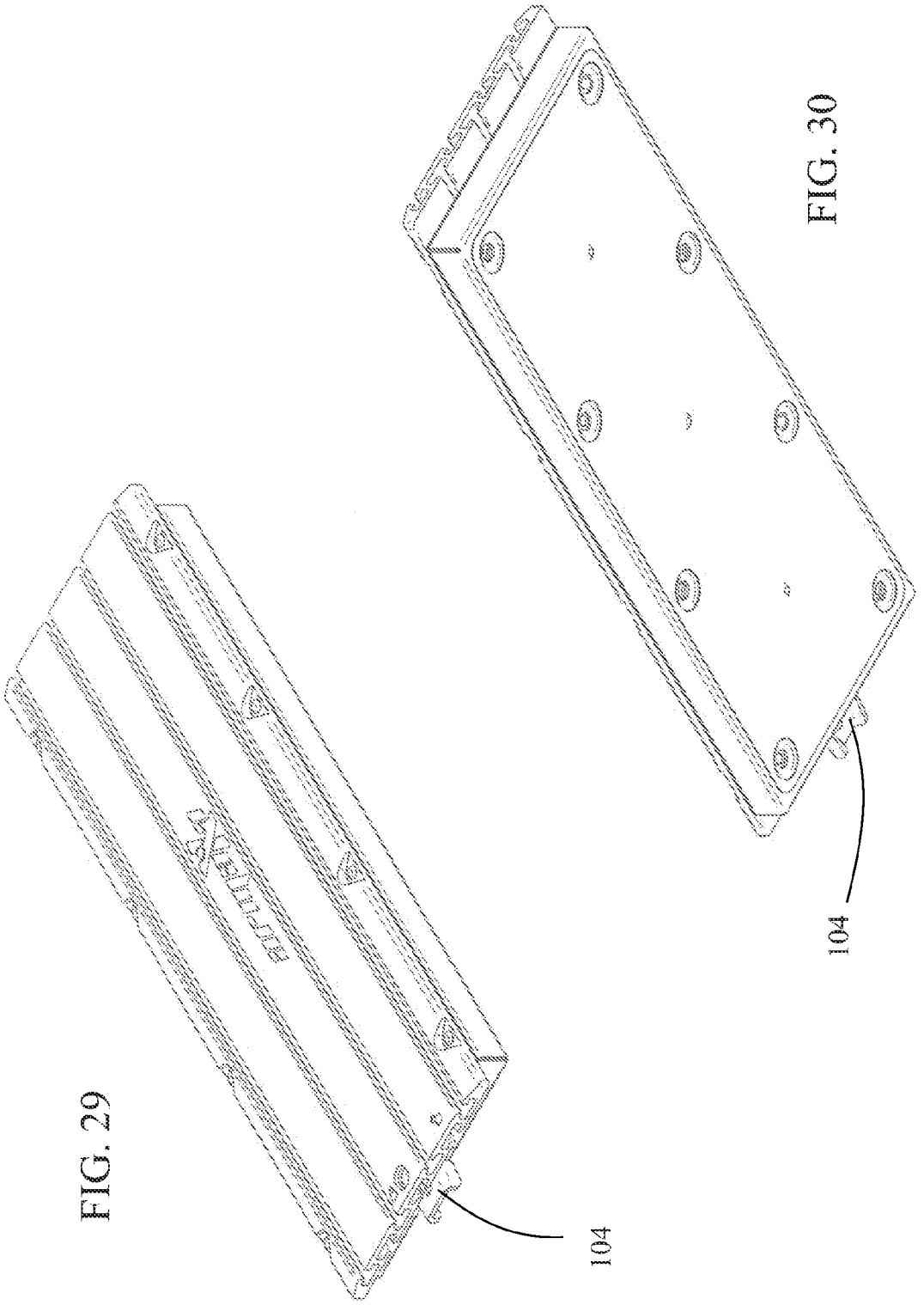


FIG. 29

FIG. 30

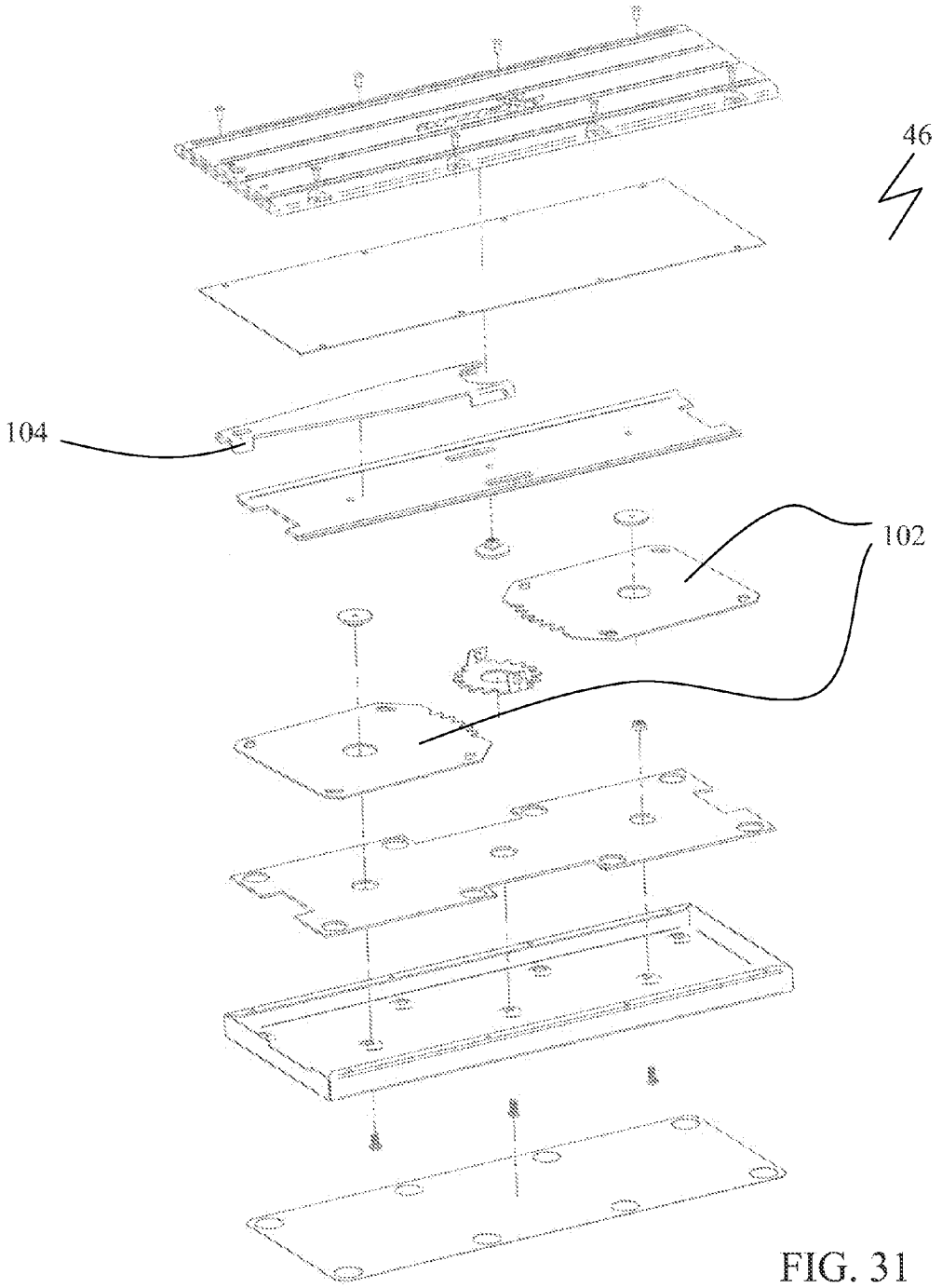


FIG. 31

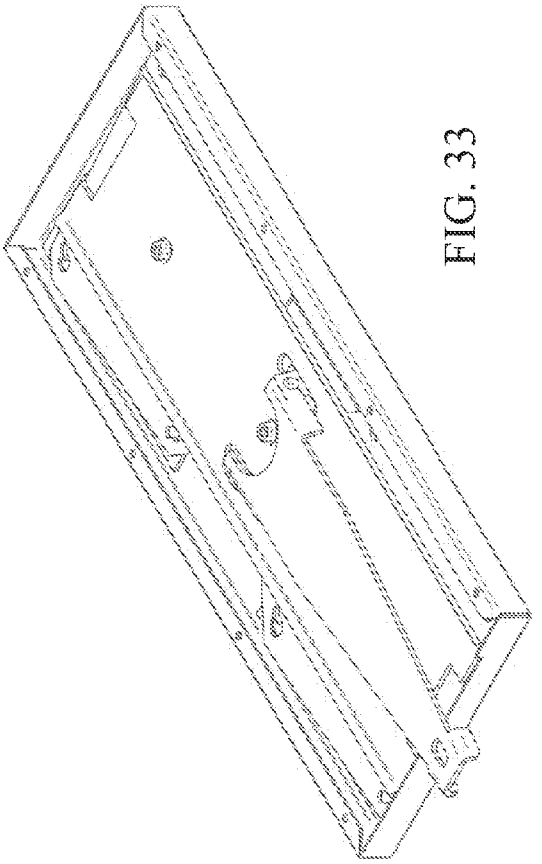


FIG. 33

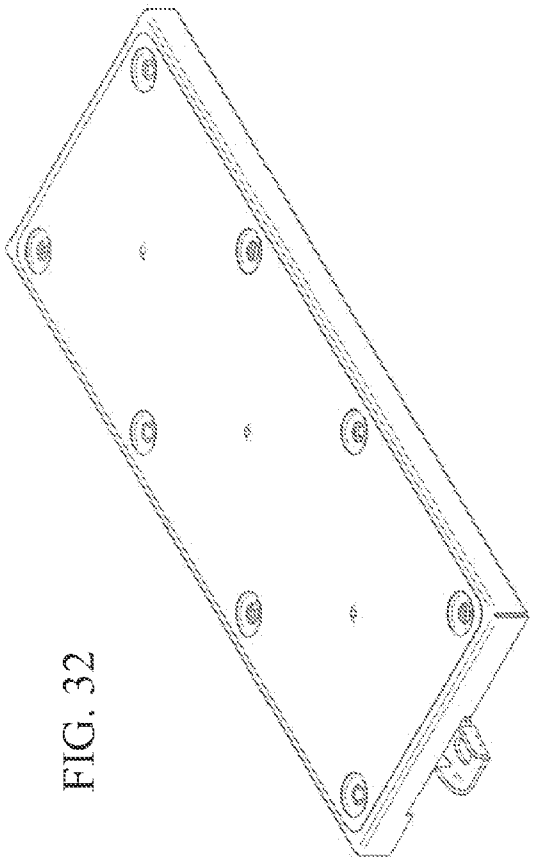


FIG. 32

FIG. 35

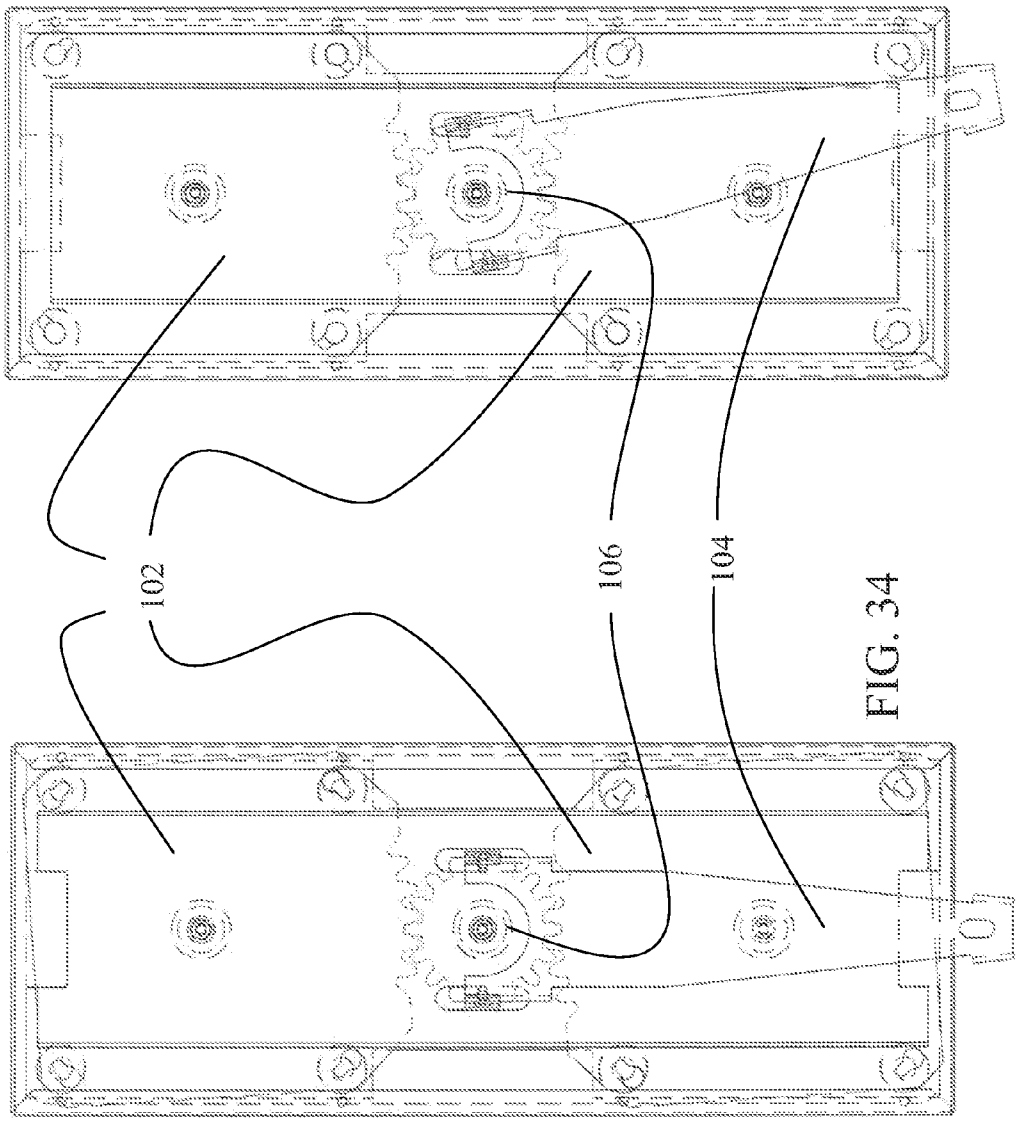
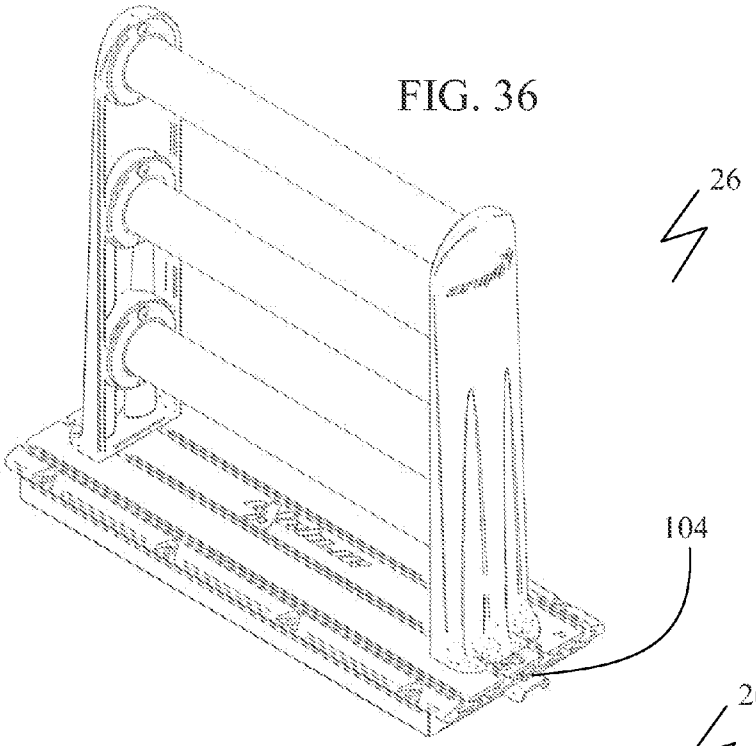


FIG. 34

FIG. 36



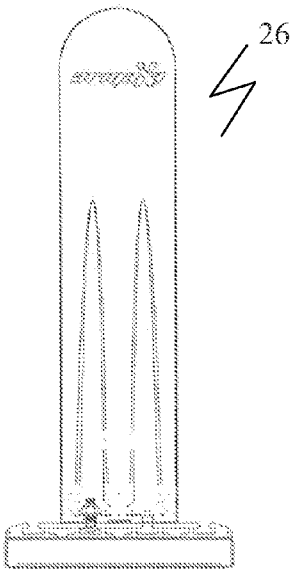


FIG. 37

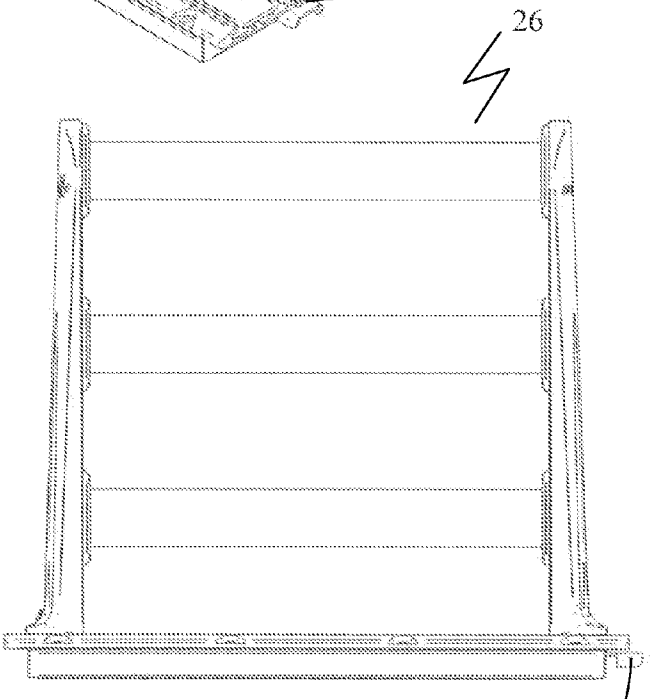


FIG. 38

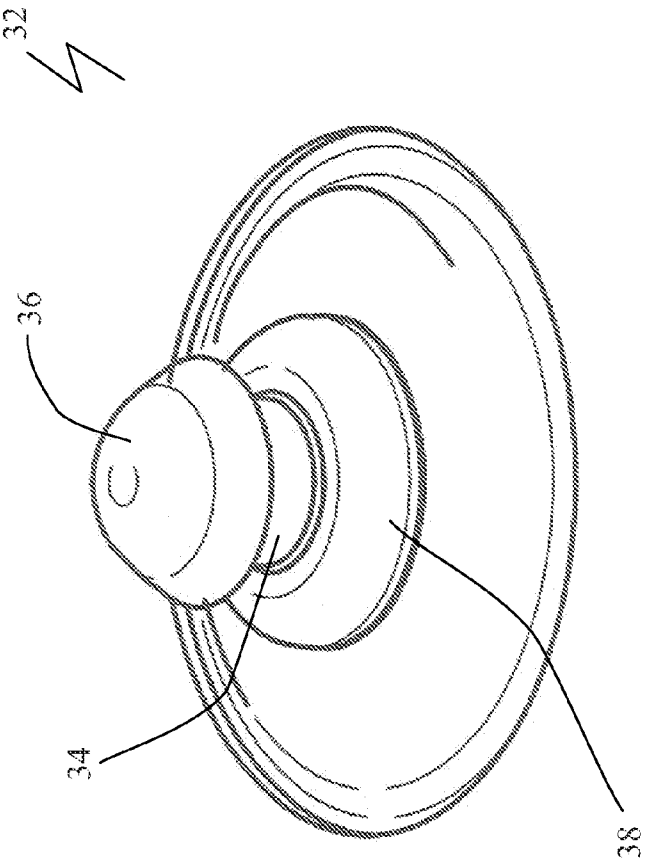
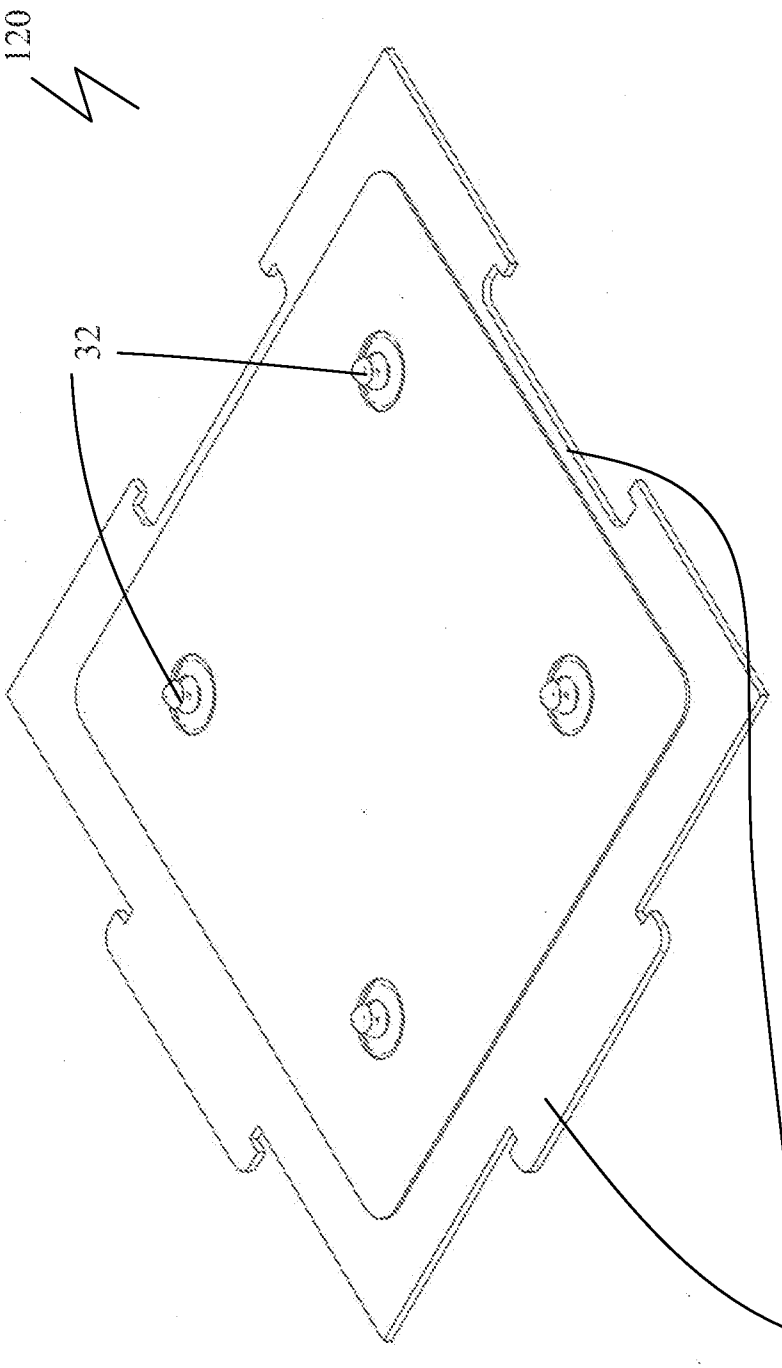


FIG. 39



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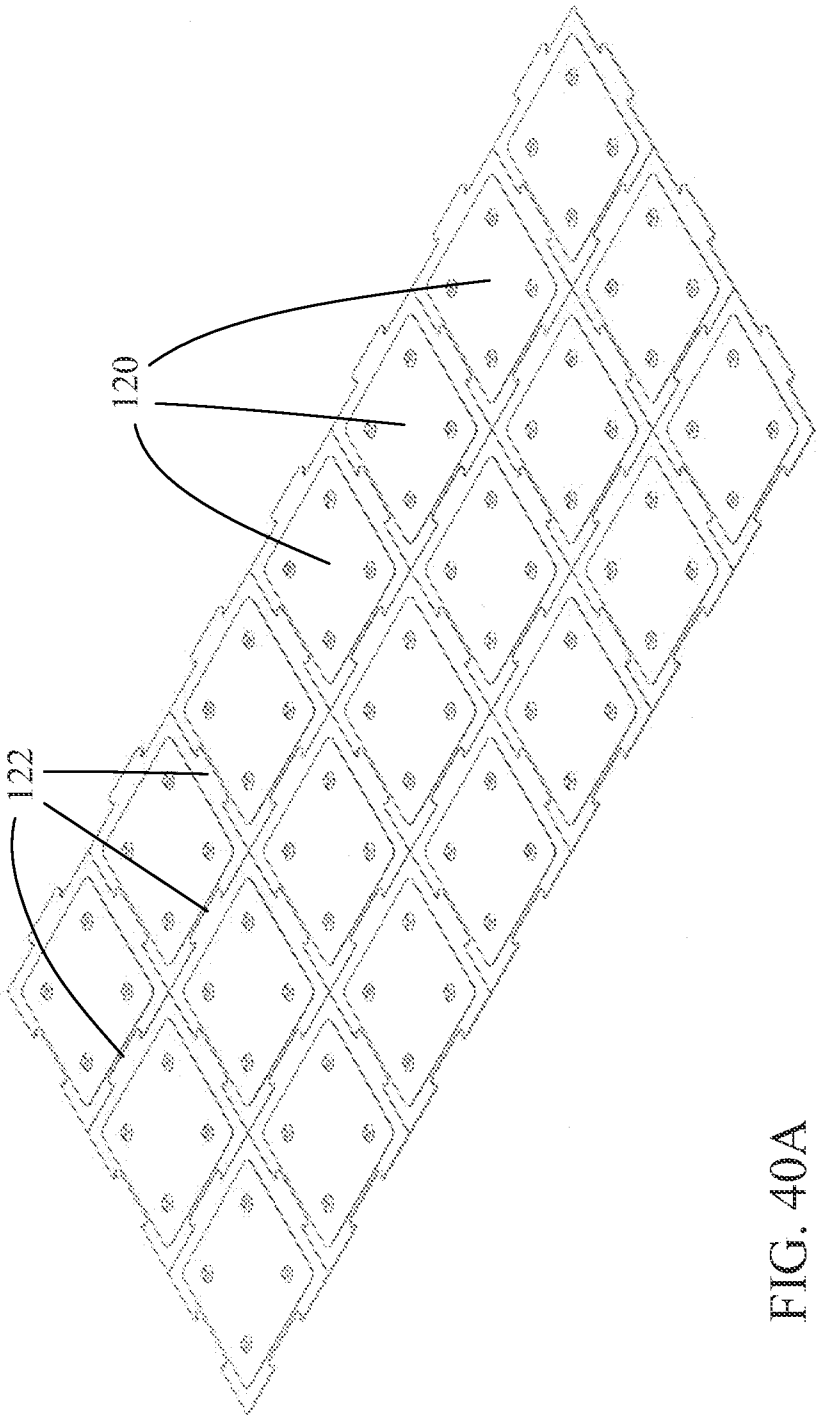

FIG. 40A

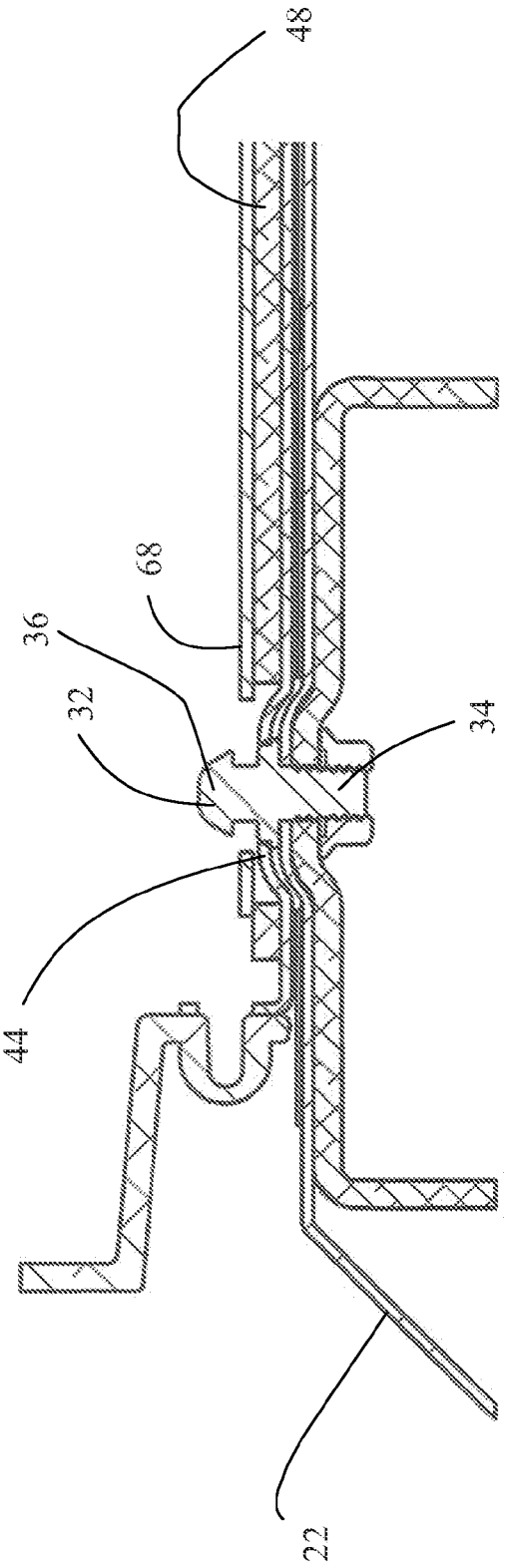

FIG. 41

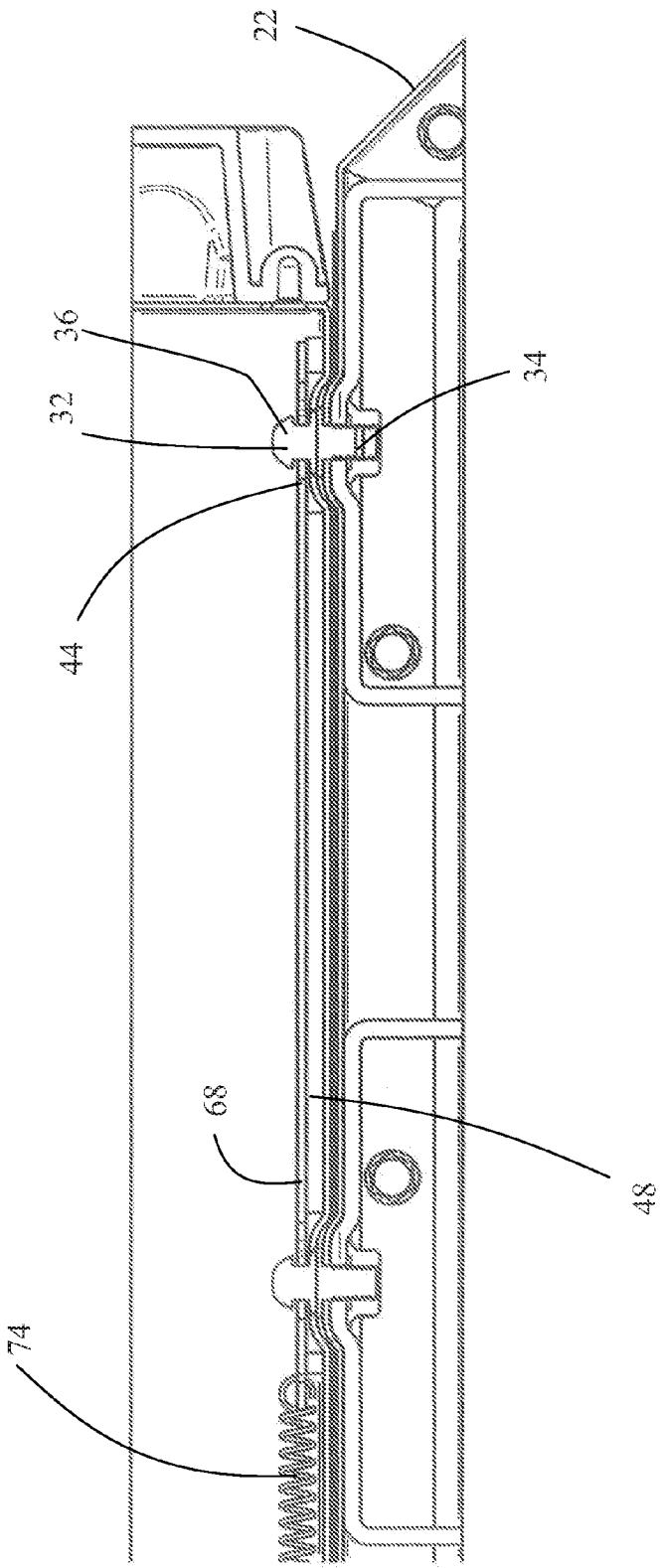

FIG. 42

APPARATUS FOR ATTACHING EQUIPMENT

FIELD

[0001] There is described an apparatus for attaching equipment, such as a toolbox assembly in which a secondary toolbox or tool accessory is coupled to a base.

BACKGROUND

[0002] U.S. Patent Publication No. 2011/0073516 (Zelinskiy) entitled "Stackable Toolbox Assembly" discloses a grouping of toolboxes that have mating connections and stack. There will hereinafter be described a toolbox assembly that is an alternative to Zelinskiy.

SUMMARY

[0003] There is provided an apparatus for attaching equipment which includes a base and one of a toolbox or tool accessory. The base has a primary engagement surface with a plurality of outwardly projecting male members each comprising a shaft with an enlarged head at a remote end. The toolbox or tool accessory has a secondary engagement surface with a plurality of inwardly recessed female receivers configured to receive the male members in mating relationship. A locking assembly is positioned within the toolbox or tool accessory. The locking assembly includes a movable catch that is movable between a locking position and a release position. In the locking position, the catch engages the enlarged head of each of the male members to prevent the male members from being withdrawn from the female receivers. In the release position, the catch is spaced from the enlarged heads of each of the male members.

[0004] It is preferred that the movable catch be in the form of at least one movable catch plate having catch profiles which engage the enlarged head of each of the male members in the locking position. In the preferred embodiment, there are two movable catch plate sections connected by an expandable linkage. The expandable linkage selected for illustration is a scissor linkage, although it will be appreciated that other forms of expandable linkage could have been used.

[0005] In order to maintain the two movable catch plate sections in the locking position, it is preferred that the two movable catch plate sections be biased by springs toward the locking position. This then requires that the biasing force of the springs must be overcome in order to expand the linkage and move the movable catch plate sections to the release position.

[0006] In order to prevent binding, it is preferred that the movable catch plate sections each have a slotted track and the toolbox or tool accessory have a track guide configured to engage the slotted track and guide movement of the movable catch plate sections.

[0007] When it is anticipated that the apparatus will be used in adverse weather conditions, it is preferred that resilient sealing elements be positioned across each of the female recesses. Each sealing element resiliently deforming to facilitate entry of a male member. Each sealing element resiliently returns to a sealing position across the female recess when the male member is withdrawn.

[0008] In order to facilitate movement between the locking position and the release position, it is preferred that handles be provided which protrude from an exterior surface on opposed sides of the toolbox or tool accessory. The handles are connected to the movable catch plate sections. A manual pulling force exerted upon the handles serves to overcome the biasing force of the springs and move the movable catch plate sections to the release position.

[0009] In order to reduce the risk of accidental release or reduce the risk of theft, one of the handles may be provided with a first aperture and an immovable protuberance on the exterior of the toolbox or tool accessory may be provided with a second aperture. Removal of the toolbox or tool accessory from the base may be prevented by aligning the first aperture and the second aperture and extending a padlock through the apertures to secure the handles to the immovable protuberance and prevent movement of the movable catch plate sections to the release position.

[0010] In another example, the base may be a primary toolbox and the toolbox with the secondary engagement surface may be a secondary toolbox.

[0011] In another example, the base may have a connection that connects to a tailgate of a truck.

[0012] In another example, the plurality of outwardly projecting male members may be selectively retractable within the base. Each projecting male member is refracted and extended using a sloped surface that moves laterally within the base and applies an extending force to the corresponding projecting male member.

[0013] In another example, the tool accessory may comprise at least one of a fuel container, a rack accessory, vice grips, and power tools.

[0014] In another example, the base may comprise a top surface of a truck toolbox that has attachments for mounting in a box of a truck.

[0015] In another example, the base may comprise a modular surface that can be connected to additional modular surfaces.

[0016] According to a further aspect, there is provided a toolbox, comprising a toolbox body having a bottom, a top cover and a surrounding sidewall, the toolbox body defining an inner enclosure, and the top cover comprising a first locking element. There is at least one handle on the surrounding sidewall adjacent to the first locking element, and the handle carrying a second locking element that selectively engages the first locking element, the handle being mounted to the toolbox body by a linkage. The linkage comprises a pivoting axis that permits pivotal movement of the handle between an operative pivotal position and a locking pivotal position and a sliding actuator that permits lateral movement of the handle between a first lateral position and a second lateral position, wherein, in the locking pivotal position, the handle is restricted from laterally moving from the second lateral position to the first lateral position and the second locking element engages the first locking element to fix the position of the top cover.

[0017] In another example, the toolbox may comprise a secondary lock for locking the at least one handle in the locking pivotal position.

[0018] In another example, the secondary lock may comprises an aperture in the handle sized to receive a padlock.

[0019] In another example, the bottom of the toolbox body may further comprise at least one mounting lock that removably locks to a locking surface, wherein movement of the at least one handle to the first lateral position releases the mounting lock from the locking surface.

[0020] In another example, in the first lateral position, the at least one handle may be retracted toward the inner enclosure and each handle may be connected by a lever to the respective

mounting lock, such that the movement of the at least one handle to the first lateral position releases the at least one mounting lock.

[0021] In another example, in the first lateral position, the handle may be refracted toward the inner enclosure.

[0022] In another example, in the first lateral position, the handle may be restricted from pivotally moving from the operative pivotal position to the locking pivotal position.

[0023] These and other features will be apparent from the specification and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] These and other features will become more apparent from the following description in which reference is made to the appended drawings, the drawings are for the purpose of illustration only and are not intended to be in any way limiting, wherein:

[0025] FIG. **1** is a top perspective view of an apparatus for attaching equipment in the form of a toolbox assembly, for purpose of illustration assembly including a primary toolbox, a secondary toolbox, and accessories in the form of a rack and two fuel containers.

[0026] FIG. **1**A is a side elevation view of the primary tool box illustrated in FIG. **1**.

[0027] FIG. **2** is a front perspective view of the primary toolbox illustrated in FIG. **1**.

[0028] FIG. **2**A is a detailed side elevation view in section of a handle of the primary tool box in a locked position.

[0029] FIG. **2**B is a detailed side elevation view in section of a handle of the primary tool box in an unlocked position.

[0030] FIG. **3** is a rear perspective view of the primary toolbox illustrated in FIG. **1**.

[0031] FIG. **4** is a front perspective view of the primary toolbox illustrated in FIG. **1**, with drawer opened.

[0032] FIG. **5** is a side elevation view of the primary toolbox illustrated in FIG. **4**.

[0033] FIG. **6** is a detailed perspective view of the male member, which is mounted on the primary toolbox illustrated in FIG. **1**.

[0034] FIG. **7** is a bottom perspective view of the secondary toolbox illustrated in FIG. **1**.

[0035] FIG. **8** is a top perspective view of the secondary toolbox illustrated in FIG. **7**, with lid raised.

[0036] FIG. **9** is a top perspective view of the secondary toolbox illustrated in FIG. **7**, with both lid and false bottom removed to reveal locking assembly detail.

[0037] FIG. **10** is a bottom plan view, in section, of the secondary toolbox illustrated in FIG. **7**, with bottom removed to reveal locking assembly detail.

[0038] FIG. **11** is a top perspective view of the locking assembly of the secondary toolbox illustrated in FIG. **7**.

[0039] FIG. **12** is a bottom perspective view of the locking assembly of the secondary toolbox illustrated in FIG. **11**.

[0040] FIG. **13** is an exploded perspective view of the locking assembly illustrated in FIGS. **11** and **12**.

[0041] FIG. **14** is a side elevation view, in section, of the male member from the primary toolbox illustrated in FIG. **6** mated with the locking assembly of the secondary toolbox.

[0042] FIG. **15** is a bottom perspective view of the rack accessory illustrated in FIG. **1**.

[0043] FIG. **16** is a bottom perspective view of the fuel container illustrated in FIG. **1**.

[0044] FIG. **17** is a top perspective view of a work platform.

[0045] FIG. **18** is a side elevation view of the work platform illustrated in FIG. **17**.

[0046] FIG. **19** is a detailed side elevation view, in section, of the work platform illustrated in FIG. **17**.

[0047] FIG. **20** is a detailed view of the handle on the work platform illustrated in FIG. **17**.

[0048] FIG. **21** is a top perspective view of a further example of a toolbox assembly.

[0049] FIG. **22** is a top perspective view of the secondary tool box with an open lid.

[0050] FIG. **23** is a front elevation view of the secondary tool box.

[0051] FIG. **24** is a bottom plan view of the secondary tool box.

[0052] FIGS. **25** and **26** are perspective views of the secondary tool box.

[0053] FIGS. **25**A and **26**A are end plan views of the secondary tool box showing the handle in a locked pivotal position and an unlocked pivotal position.

[0054] FIG. **27** is a top perspective view of the inside of the secondary tool box.

[0055] FIG. **27**A is a side elevation view in section of the secondary tool box showing details on the handle and the locking mechanism.

[0056] FIG. **28** is an exploded view of an alternative locking mechanism.

[0057] FIG. **29** is a top perspective view of the locking mechanism of FIG. **28**.

[0058] FIG. **30** is a bottom perspective view of the locking mechanism of FIG. **28**.

[0059] FIG. **31** is an exploded view of a further alternative locking mechanism.

[0060] FIG. **32** is a bottom perspective view of the locking mechanism of FIG. **31**.

[0061] FIG. **33** is a top perspective view of the locking mechanism of FIG. **31**.

[0062] FIGS. **34** and **35** are top plan views of the locking mechanism of FIG. **31** in the locked an unlocked positions.

[0063] FIG. **36** is a perspective view of an alternative headache rack.

[0064] FIG. **37** is an end elevation view of the alternative headache rack of FIG. **36**.

[0065] FIG. **38** is a front elevation view of an alternative headache rack of FIG. **36**.

[0066] FIG. **39** is a perspective view of an alternative male member.

[0067] FIG. **40** is a perspective view of a tile used to make a base.

[0068] FIG. **40**A is a perspective view of a base made from a plurality of tiles.

[0069] FIGS. **41** and **42** are side elevation views in section of alternative engagements of the male member and the locking mechanism.

DETAILED DESCRIPTION

[0070] An apparatus for attaching equipment will now be described. Referring to FIG. **1**, the apparatus is shown as a toolbox assembly **20** depicted in FIG. **1** includes a base **22**, shown as a primary toolbox, and one or more secondary toolboxes **24** or accessories. Chosen for illustration as other possible accessories that a user may use are a rack accessory **26**, or "headache rack" and fuel containers **28**. Other tool accessories (not shown) may include vice grips, power tools, etc. Base **22** in the depicted embodiment has attachments **25**

on the underside for mounting the toolbox assembly **20** in the box of a truck. Other attachments may also be provided on the sides of base **22** that engage the top of a truck box, or any other convenient location. Base **22** is not necessarily a primary toolbox. For example, base **22** may be another type of container or storage box, a shelf, a work surface as shown in FIG. **17**, or it may be a modular surface, such as a tile **120** as shown in FIG. **40**. The latter two options are described in more detail below. Other options will also be apparent to those skilled in the art as those described below are illustrative examples only.

[0071] Referring now to FIG. **21**, equipment may be attached as desired on the upper surface of primary toolbox **22** As shown, primary toolbox **22** has multiple secondary toolboxes **24** attached. Preferably, the spacing between panels are such that the accessories used on primary toolbox **22** need not be mounted on separate panels of the primary engagement surface **30**, but may also span the panels as is shown with the rack accessories **26**. Furthermore, the accessories are designed with a common pattern such that they may be attached in any preferred location, as desired by the user.

[0072] Primary toolbox **22** is illustrated in FIGS. **1**A-**5**. Referring to FIG. **2**, primary toolbox **22** has a primary engagement surface **30** with a plurality of outwardly projecting male members **32**. FIG. **1**A depicts the outward projection of the male members **32**. Referring to FIG. **6**, each male member **32** has a shaft **34** with an enlarged head **36** at a remote end **38**. Referring to FIG. **39**, another example of male member **32** is shown. In the example depicted in FIG. **6**, male member **32** has been provided with an engagement profile **37** that may be engaged by a wrench or other tool. This may be preferably if male members **32** are threaded into place or if a particular design of male members **32** is such that the orientation is important. If male members **32** are installed by, for example, riveting or welding, engagement profile **37** may not be required, as in FIG. **39**. Referring to FIG. **4** and FIG. **5**, in the illustrated embodiment primary engagement surface **30** is the top surface. This top surface is fixed, although it may be mounted to a lid **33** that raises and lowers to provide additional storage space or that provides an alternate access to a drawer **40** in toolbox **22**. As lid **79** generally can only be raised when nothing is mounted to lid **33**, preferably it is simply an alternate access to drawer **40**. Referring to FIG. **3**, tool box **22** preferably has stops **35** that prevent tool box **22** from being located too closely to the cab of a truck and risk damage to a rear window.

[0073] As mentioned above, various accessories may be mounted to base **22**. As an example, secondary toolbox **24** is illustrated in FIGS. **7**-**10**. Referring to FIG. **7**, secondary toolbox **24** has a secondary engagement surface **42** with a plurality of inwardly recessed female receivers **44**. Referring to FIG. **14**, female receivers **44** are configured to receive male members **32** in mating relationship. Another example of the locking assembly with female receivers **44** configured to receive male members **32** in mating relationship is shown in FIG. **41**. A further example of the locking assembly is shown in FIG. **42**.

[0074] Referring to FIGS. **22**-**27**, secondary tool box **24**, including its interior, may be configured in different ways, based on the preferences of the user or manufacturer. For example, as shown in FIG. **22**, secondary toolbox may have further accessories in the interior, such as the depicted tray **45**.

[0075] Referring to FIGS. **9**-**14**, a locking assembly, generally indicated by reference numeral **46** is depicted in relation to secondary toolbox **24**. A similar locking assembly is used for other types of tool accessories as well, as shown in FIGS. **15** and **16**. Referring to FIG. **13**, an exploded view is provided to facilitate identification of all of the components of locking assembly **46**. A bottom of secondary toolbox **24** is identified by reference numeral **48**. Bottom **48** has a plurality of peripheral openings **50**. A false bottom visible from inside secondary toolbox **24** is identified by reference numeral **52**. False bottom **52** is secured in position by a plurality of screws **54** and acts to hide and protect the internal components of locking assembly **46**. An immovable locking assembly underlying support **56** is positioned adjacent bottom **48** of secondary toolbox **24**. Locking assembly underlying support **56** has recesses **58** which are in register with openings **50** in bottom **48**. Locking assembly underlying support **56** also has three upstanding members **60***a*, **60***b*, and **60***c*. There are two movable catch plate sections **62***a* and **62***b* connected by an expandable scissor linkage, generally indicated by reference numeral **64**. Expandable scissor linkage **64** has two arms **66***a* and **66***b*, which pivot about a pivot axis provided by upstanding member **60***b*. Each of movable catch plate sections **62***a* and **62***b* have openings that serve as catch profiles **68**. Referring to FIG. **10**, expandable scissor linkage **64** is shown in its operative position for facilitating movement of catch plate sections **62***a* and **62***b* toward and away from each other. The movement is a sliding movement between a locking position and a release position. Referring to FIG. **14**, catch profiles **68** engage enlarged head **36** of each of male members **32** when in the locking position. Referring to FIG. **13**, catch plate sections **62***a* and **62***b* each have a slotted track **70**. An elongated track guide **72** is provided to engage the slotted track **70** and guide movement of catch plate sections **62***a* and **62***b*. Referring to FIG. **10**, the relationship between slotted track **70** of catch plate sections **62***a* and **62***b* and track guide **72** is illustrated. Springs **74** extend between catch plate sections **62***a* and **62***b* to bias catch plate sections **62***a* and **62***b* into the locking position. In order to move catch plate sections **62***a* and **62***b* from the locking position into the release position, a force must be exerted upon handle portions **76** of catch plate sections **62***a* and **62***b*, which extend from secondary toolbox **24**. Referring to FIG. **13**, in order to prevent slotted track **70** of catch plates sections **62***a* and **62***b* from separating from track guide **72**, overlying guide plates **78** are provided which attach to track guide **72**. Washers **80** are provided to facilitate pivotal movement of expandable scissor linkage **64**. In order to facilitate use in adverse weather conditions, resilient sealing elements **82** are provided. Referring to FIG. **14**, sealing elements **82** are positioned across each of the female recesses **58**. Each sealing element **82** resiliently deforms to facilitate entry of male member **32**. Each sealing element **82** resiliently returns to a sealing position across female recess **58** when male member **32** is withdrawn.

[0076] Referring to FIG. **13**, catch plate sections **62***a* and **62***b* have an aperture **84**. The movement of catch plates **62***a* and **62***b* may be controlled by handles **85** on the sides of secondary tool box **24**. Handles **85** may be pulled out and rotated to a vertical orientation to lock tool box **24** in place as shown on the right hand side of FIG. **9**, or rotated horizontal and pushed in to unlock toolbox **24** as shown on the left hand side of tool box **24**. To ensure tool box **24** is not released accidentally or to prevent theft, a padlock **83** or other locking device may be used to secure handle **85** in the locked position, as shown in FIG. **8**. As shown in FIG. **9**, the handles **85** are connected to the catch plates **62***a* and **62***b* by an actuator, depicted as a plate **63** that acts as a lever. This lever or levers

63 is preferably attached to the movable catch plate sections **62***a* and **62***b* such that they can be released by either pushing or pulling on the handles **85**, depending on the orientation of the lever **63**. As depicted, levers **63** move to a release position as handles **85** are pressed into or toward toolbox **24**. In this example, a scissor linkage **64** has been provided such that it is only necessary for one handle **85** to be movable.

[0077] Referring to FIGS. **27** and **28**, alternative locking assemblies **46** may be used in any of the toolboxes or accessories. In the depicted embodiment the locking assembly **46** has cantilevered panels **110** that attach each handle **85** to a catch plates **108**, two of which are shown. Catch plates **108** are moved to a release position by moving toward the respective end of toolbox **24** and attached together by springs **112** such that they bias each other towards the locked position. In this embodiment, catch plates **108** move independently such that a force must be applied to each in order to move it to the release position. As seen in FIG. **28**, catch plates **108** are aligned by a travel guide plate **114** and held in place by a cover plate **116**. The catch plates **108** are mounted over base plate **118** which mounts on the base of the toolbox **24** and engages the male members **32** through the bottom **48** that has openings **50**. When handles **85** have external pressure applied they recess into toolbox **24**, causing the cantilevered panel **110** to pull the catch plates **108** against springs **112** causing plates **108** to move away from each other and towards opposite ends of toolbox **24**. This movement of the plates **108** releases the locking mechanism from male members **32** and they are released and the toolbox **24** may be removed.

[0078] As shown in FIG. **25**, handles **85** may also be used to lock the top cover **79** of the toolbox **24** to prevent theft or accidental opening during transportation. In some embodiments, the locking mechanism for the cover **79** and the locking mechanism for the mounting lock may both use the handles **85**. In this preferred example, tool box **24** may be both locked to base **20** and have top cover **79** locked using the same mechanism. Toolbox **24** has a first locking element **39** and the handle **85** has a second locking element **41** that acts to selectively engage the first locking element and are shown in FIG. **27**A. As shown, first locking element **39** is an indent in top cover **79**. A corresponding indent is also found in the body of toolbox **24** and second locking element **41** is a pin that is received within the indents. When engaged, handle **85** is prevented from being rotated to allow cover **79** form being opened and from moving laterally toward the toolbox **24**. Alternatively, first locking element may be a slotted pin (not shown) that is engaged by a receiving slot carried by handle that receives the first locking element as it is rotated toward it. Other locking designs may also be used. For example, second locking element may have a cavity that receives first locking element as handle **85** is pulled away from toolbox **24** and placed over first locking element. In these examples, handle **85** is pivotally mounted to the toolbox **24** by a linkage **43**. This provides a pivoting axis such that the handle **85** may move between an operative pivotal position as in FIGS. **26** and **26**A, and a locking pivotal position as seen in FIGS. **25** and **25**A. In some examples, linkage also permits lateral movement of handle **85** toward and away from the inner enclosure **47** of toolbox **24**. With a locking mechanism as shown in FIG. **27**, handle **85** moved between a first lateral position in which handle **85** is recessed towards or within inner enclosure and a second lateral position in which handle **85** extends away from inner enclosure. When the toolbox **24** is in storage, handle **85** will be in the second lateral position and the locking pivotal position, where both the top cover **79** and the mounting lock, such as a locking assembly **46** are locked to prevent release of either top cover **79** or toolbox **24** from base **20**. In the locking pivotal position, first locking element and second locking element are engaged, and handle **85** is restricted from laterally moving from the second lateral position to the first lateral position. When handle **85** is turned to the operative pivotal position, handle **85** can then be move laterally toward the first lateral position. In the first lateral position, handle **85** is restricted from pivotally moving from the operative pivotal position to the locking pivotal position. As shown in the embodiment in FIG. **27**A, cantilevered panels **110** are linked to the handles **85** such that the cantilevered panels **110** release the mounting lock when the handles **85** are in the locking lateral position, and prevent the release of the mounting lock when the handles **85** are in the operative lateral position. In other examples there may be a secondary lock **49** for locking at least one of the handles in the locking pivotal position. As shown in FIG. **25**, this secondary lock may be an aperture in the handle **85** sized to receive a padlock **83**. It will be appreciated that other types of secondary locks may be used, for example a key lock (not shown) within handle **85** that prevents the handle from being rotated when in a locked position.

[0079] Referring to FIGS. **29-35** a further example of locking assembly **46** is shown. In the example shown in FIG. **31**, locking assembly **46** has pivotally mounted catch plates **102**. In the depicted example there are two pivotally mounted catch plates **102**, but it will be appreciated that different numbers of catch plates **102** may be used depending on the length of locking assembly **46** and the preferences of the user. With this locking assembly **46**, pivotally mounted catch plates **102** are mounted to tool box **24** or other tool accessory such that the catch plate **102** moves pivotally between a locking position and a release position. This is accomplished using lever **104**. FIGS. **34** and **35** depict this rotation. It may also be possible to cause the movement by applying a force to handles **85**, such as is described previously. As shown, when in the locked position, the male members **32** will be held in place by the female members **44**. Moving lever **104** engages rotary actuator **106** that in turn engages each of the catch plate sections **102**, the rotary actuator **106** rotating the catch plates **102** to the release position, which in turn rotates the profiles of the female members **44**, aligning the profile such that male member **32** is released.

[0080] As shown in FIGS. **36-38**, the alternative locking assembly **46** may also be used for the accessories. The locking assembly discussed in FIGS. **29-35** is shown, but it will be appreciated that any locking mechanism discussed may be used for both the toolboxes or the accessories or both.

[0081] There may also be handles **87** on primary tool box **20**. The movement of handles **87** are shown in FIGS. **2**A and **2**B. As with handle **85**, handles **87** are able to be pulled out and rotated to a locked, vertical position. In the locked position, handle **85** prevents drawer **40** from sliding open, and lid **40** from opening. As can be seen, handle **87** has a pin **89** that engages an aperture **91** on lid **40**. For additional security, a padlock or other device may be used to secure handle **87** in the locked position. The movement of handle **85** will be similar, although there will be an additional linkage that moves catch plates **62***a* and **62***b*.

[0082] Referring to FIGS. **17** and **18**, outwardly projecting male members **32** may retract within base **22**. Male member **32** may be biased toward a refracted and forced outward by moving ramps **86** or other sloped surfaces, shown in FIG. **19**,

which move laterally within base **22**. Ramps **86** may move along the length or width of base **22**. As shown, ramps **86** may be connected to a handle **88** that is accessible from below. FIG. **19** shows various ramps **86** in a progression from left to right.

[0083] When used in the box of a truck, it is preferred that base **22** be a toolbox, as described above. However, referring to FIGS. **17-20**, it will be understood that base **22** may not be a toolbox, but may also be a working platform, indicated by reference numeral **100**. Male member **32** is shown as being retractable on base **22** when designed to be temporarily attached as a working platform. As shown in FIG. **17**, working platform **100** may have hinges **93** that permit it to be folded for storage and transport. The retractable male members **32** described above are particularly useful when base **22** is intended for intermittent use only, such as with the depicted working platform. In the depicted embodiment, male members **32** are actuated in two groups, from either end of platform **100**.

[0084] Referring to FIG. **20**, platform **100** has handles **90** with an engagement pin **92** that is designed to engage the lock mechanism of a tailgate (not show). Handles **90** are movable to allow the pin to be properly engaged, and preferably also control the position of male members **32**. For example, male members **32** may extend when handle **90** is pulled out, or may extend when handle is rotated down. Alternatively, there may be a separate actuator for male members **32**, such as a different handle, which allows a flat surface to be available if desired, while still locking platform **100** onto the tailgate. Once attached, working platform **100** allows the tailgate to be used as a workbench with male members **32** that allow tool accessories, such as hand tools, power tools, etc. to be attached to working platform **100**. Platform **100** may have a bottom surface that is designed to engage a tailgate to improve stability.

[0085] Referring to FIG. **40**, base **22** may also have the form of a modular surface, such as a tile, which may be interconnected with additional modular surfaces to form a platform for mounting secondary toolboxes **24** or tool accessories. These modular surfaces need not necessarily be mounted in a truck, but may also be used as working surfaces, shelving units, etc. An embodiment of this modular surface is shown in FIG. **40** in the form of a tile **120**. These tiles **120** may have interlocks **122** to engage adjacent tiles **120**. FIG. **40**A shows how multiple tiles may be connected together in order to form larger surfaces.

Operation:

[0086] Locking assembly includes a movable catch that is movable between a locking position and a release position. In the locking position, the catch engages the enlarged head of each of the male members to prevent the male members from being withdrawn from the female receivers. In the release position, the catch is spaced from the enlarged heads of each of the male members.

[0087] It is preferred that the movable catch be in the form of at least one movable catch plate having catch profiles which engage the enlarged head of each of the male members in the locking position. In the preferred embodiment, there are two movable catch plate sections connected by an expandable linkage. The expandable linkage selected for illustration is a scissor linkage, although it will be appreciated that other forms of expandable linkage could have been used.

[0088] In order to maintain the two movable catch plate sections in the locking position, it is preferred that the two movable catch plate sections be biased by springs toward the locking position. This then requires that the biasing force of the springs must be overcome in order to expand the linkage and move the movable catch plate sections to the release position.

[0089] In order to prevent binding, it is preferred that the movable catch plate sections each have a slotted track and the secondary toolbox or tool accessory have a track guide configured to engage the slotted track and guide movement of the movable catch plate sections.

[0090] When it is anticipated that the apparatus will be used in adverse weather conditions, it is preferred that resilient sealing elements be positioned across each of the female recesses. Each sealing element resiliently deforming to facilitate entry of a male member. Each sealing element resiliently returns to a sealing position across the female recess when the male member is withdrawn.

[0091] In order to facilitate movement between the locking position and the release position, it is preferred that handles be provided which protrude from an exterior surface on opposed sides of the secondary toolbox or tool accessory. The handles are connected to the movable catch plate sections. A manual pulling or pushing force exerted upon the handles serves to overcome the biasing force of the springs and move the movable catch plate sections to the release position.

[0092] In this patent document, the word "comprising" is used in its non-limiting sense to mean that items following the word are included, but items not specifically mentioned are not excluded. A reference to an element by the indefinite article "a" does not exclude the possibility that more than one of the element is present, unless the context clearly requires that there be one and only one of the elements.

[0093] The scope of the claims should not be limited by the illustrated embodiments set forth as examples, but should be given the broadest interpretation consistent with a purposive construction of the claims in view of the description as a whole.

What is claimed is:

1. An apparatus for attaching equipment, comprising:

a base having a primary engagement surface with a plurality of outwardly projecting male members each comprising a shaft with an enlarged head at a remote end;

one of a toolbox or tool accessory, the toolbox or tool accessory having a secondary engagement surface with a plurality of inwardly recessed female receivers configured to receive the male members in mating relationship; and

a locking assembly positioned within the toolbox or tool accessory, the locking assembly including a movable catch that is movable between a locking position and a release position, wherein in the locking position the catch engages the enlarged head of each of the male members to prevent the male members from being withdrawn from the female receivers, and in the release position the catch is spaced from the enlarged heads of each of the male members.

2. The apparatus of claim **1**, wherein the movable catch is at least one movable catch plate having catch profiles that engage the enlarged head of each of the male members in the locking position.

3. The apparatus of claim 2, comprising two movable catch plate sections connected by an expandable linkage that moves each catch plate laterally in an opposite direction.

4. The apparatus of claim 3, wherein the expandable linkage is a scissor linkage.

5. The apparatus of claim 2, wherein the at least one movable catch plate sections are biased by springs toward the locking position, such that the biasing force of the springs must be overcome in order to move the movable catch plate sections to the release position.

6. The apparatus of claim 3, wherein each movable catch plate section has a slotted track and the secondary toolbox or tool accessory has a track guide configured to engage the slotted track and guide movement of the movable catch plate sections.

7. The apparatus of claim 5, wherein handles protrude from an exterior surface on opposed sides of the toolbox or tool accessory, the handles being connected to the movable catch plate sections, such that a manual force exerted upon the handles serves to overcome the biasing force of the springs and move the movable catch plate sections to the release position.

8. The apparatus of claim 7, wherein one of the handles has a first aperture and an immovable protuberance on the exterior of the toolbox or tool accessory has a second aperture, unauthorized removable of the secondary toolbox or tool accessory from the primary toolbox being prevented by aligning the first aperture and the second aperture and extending a padlock through the apertures to secure the handles to the immovable protuberance and prevent movement of the movable catch plate sections to the release position.

9. The apparatus of claim 7, wherein the handles are connected to the movable catch plate sections by at least one lever and the movable catch plate sections are released by pushing or pulling on the handles.

10. The apparatus of claim 2, comprising at least one catch plate section that is pivotally mounted to the toolbox or tool accessory such that the at least one catch plate section moves pivotally between the locking position and the release position.

11. The apparatus of claim 10, comprising two or more catch plate sections and a rotary actuator that engages each of the catch plate sections, the rotary actuator pivotally moving each of the catch plate sections to the release position.

12. The apparatus of claim 11, wherein the rotary actuator is actuated by a lever that extends out beyond an outer perimeter of the toolbox or tool assembly.

13. The apparatus of claim 1, wherein resilient sealing elements are positioned across each of the female recesses, each sealing element resiliently deforming to facilitate entry of a male member, each sealing element resiliently returning to a sealing position across the female recess when the male member is withdrawn.

14. The apparatus of claim 1, wherein the base is a primary toolbox and the toolbox with the secondary engagement surface is a secondary toolbox.

15. The apparatus of claim 1, wherein the base has a connection that connects to a tailgate of a truck.

16. The apparatus of claim 1, wherein the plurality of outwardly projecting male members are selectively retractable within the base.

17. The apparatus of claim 16, wherein each projecting male member is refracted and extended using a sloped surface that moves laterally within the base and applies an extending force to the corresponding projecting male member.

18. The apparatus of claim 1, wherein the tool accessory comprises at least one of a fuel container, a rack accessory, vice grips, and power tools.

19. The apparatus of claim 1, wherein the base comprises a top surface of a truck toolbox that has attachments for mounting in a box of a truck.

20. The apparatus of claim 1, wherein the base comprises a modular surface that can be connected to additional modular surfaces.

21. A toolbox, comprising:

a toolbox body having a bottom, a top cover and a surrounding sidewall, the toolbox body defining an inner enclosure, the top cover comprising a first locking element; and

at least one handle on the surrounding sidewall adjacent to the first locking element, the handle carrying a second locking element that selectively engages the first locking element, the handle being mounted to the toolbox body by a linkage, the linkage comprising:

a pivoting axis that permits pivotal movement of the handle between an operative pivotal position and a locking pivotal position; and

a sliding actuator that permits lateral movement of the handle between a first lateral position and a second lateral position, wherein, in the locking pivotal position, the handle is restricted from laterally moving from the second lateral position to the first lateral position and the second locking element engages the first locking element to fix the position of the top cover.

22. The toolbox of claim 21, further comprising a secondary lock for locking the at least one handle in the locking pivotal position.

23. The toolbox of claim 22, wherein the secondary lock comprises an aperture in the handle sized to receive a padlock.

24. The toolbox of claim 21, wherein the bottom of the toolbox body further comprises at least one mounting lock that removably locks to a locking surface, wherein movement of the at least one handle to the first lateral position releases the mounting lock from the locking surface.

25. The toolbox of claim 24, wherein, in the first lateral position, the at least one handle is retracted toward the inner enclosure and wherein each handle is connected by a lever to the respective mounting lock, such that the movement of the at least one handle to the first lateral position releases the at least one mounting lock.

26. The toolbox of claim 21, wherein, in the first lateral position, the handle is refracted toward the inner enclosure.

27. The toolbox of claim 21, wherein in the first lateral position, the handle is restricted from pivotally moving from the operative pivotal position to the locking pivotal position.

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